HEALTH SCIENCES LIBRARY
UNIVERSITY OF MARYLAND
BALTIMORE

CIRCULATE AFTER JUL

The MISSISSIPPI Doctor

M.S.M.A.

37 THE MISSISSIPPI DOCTOR, JUNE, 1959 NO. 1

Library, Univ. of Md. Sch. of
Med., S. E. Corner of Lombard
and Green Sts., Baltimore, Md.

[illegible] IS MATURE LOVE? It is union under the condition of preser[illegible]'s integrity, one's individuality. Love is an active power, a po[illegible]ch breaks through the walls which separate man from his fe[illegible]. Love overcomes the sense of isolation and separateness, y[illegible]mits you to be yourself. In love the paradox occurs that two [illegible]ecome one and yet remain two.

Words to Live By

In This Issue

PEDIATRIC UROLOGY WITH SPECIAL REFERENCE TO ABDOMINAL MASSES IN INFANTS AND CHILDREN
Theodore R. Fetter, M.D.

A PROGRAM FOR PRE-MARITAL COUNSELING
Blanche Lockard, M.D.

TIME-SAVING METHODS OF GIVING ANTEPARTAL INSTRUCTION AND SUPPORT DURING LABOR
Walter H. Simmons, M.D.

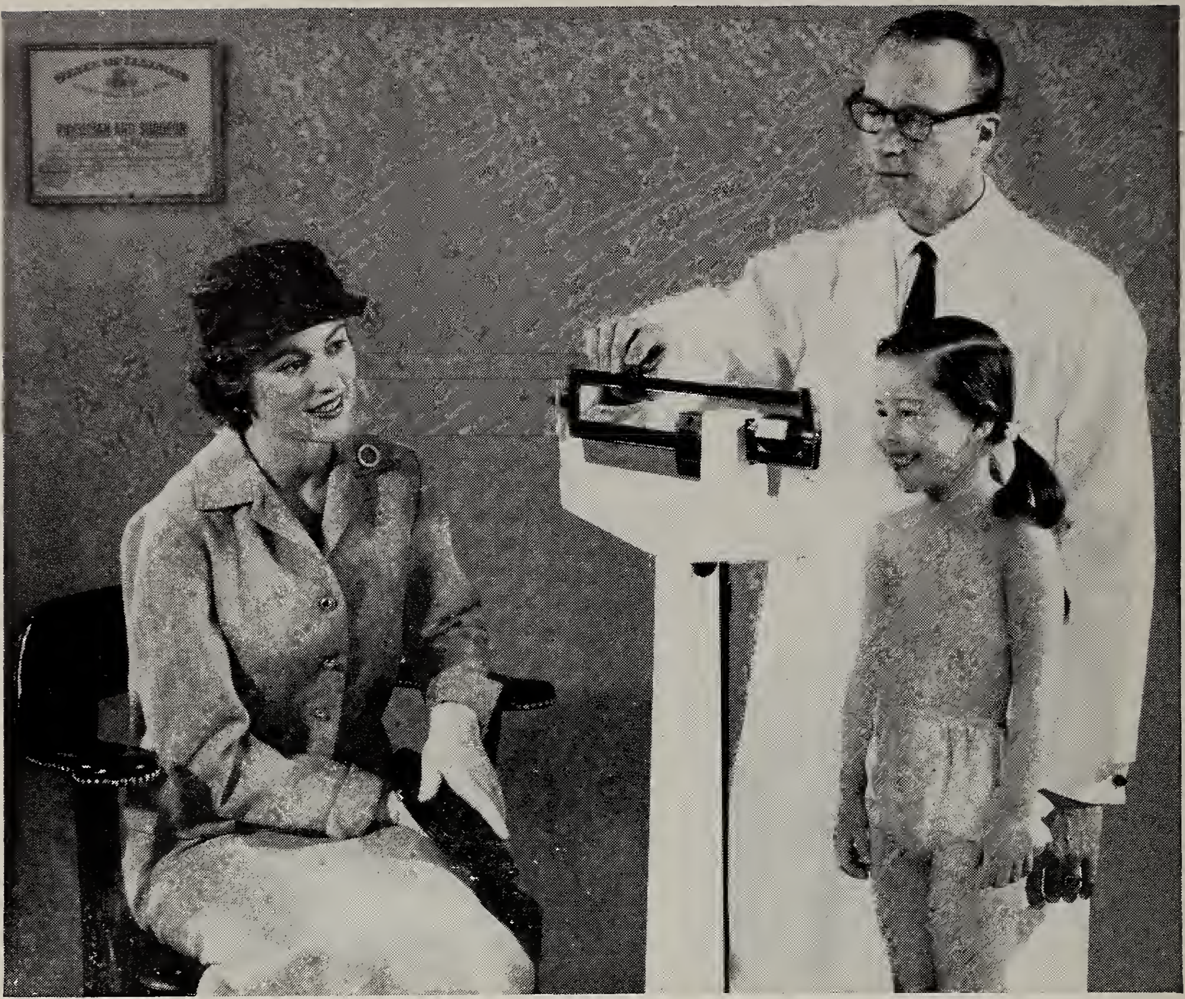
ELECTIVE INDUCTION OF LABOR — PATIENT'S ACCEPTANCE AND REACTION
Harry Fields, M.D.

THE ADVANTAGES OF PRIVATE MEDICAL CARE
Miss Lorraine Forbes

UNDERWOOD DISTINGUISHED SERVICE ORATION
David Pankratz, M.D.

k

HEALTH SCIENCES LIBRARY
UNIVERSITY OF MARYLAND
BALTIMORE



Underweight Children Gain and Retain Weight with Nilevar®

One of the most convincing evidences of the anabolic activity of Nilevar, brand of norethandrolone, has been its ability to improve appetite and increase weight in poorly nourished, underweight children.

A highly important feature of the weight gain thus produced is that it is not ordinarily manifested by deposition of fat but as muscle tissue resulting from the protein anabolism induced by Nilevar.

Anorexia and "Weight Lag" Study—Brown, Libo and Nussbaum have reported* consistent and definite increases in rate of weight gain in eighty-six patients, ranging in age from 7 weeks to 15½ years. This beneficial action of Nilevar was observed in the patients with organic and traumatic disorders as well as those whose only complaints were poor appetite and/or persistent failure to gain weight.

In this study, the weight gained was not lost after discontinuance of Nilevar therapy although many patients did not continue the sharp gains effected by the drug.

The authors are of the opinion that Nilevar is a highly useful anabolic agent for influencing weight gain in underweight children.

When Nilevar is administered to children a dose of 0.25 mg. per pound of body weight is recommended and continuous dosage for more than three months is not recommended.

Nilevar is supplied as tablets of 10 mg., drops of 0.25 mg. per drop and ampuls of 25 mg. in 1 cc. of sesame oil. Further dosage information in Searle Reference Manual No. 4.

G. D. Searle & Co., Chicago 80, Illinois. Research in the Service of Medicine.

---

*Brown, S. S.; Libo, H. W., and Nussbaum, A. H.: Norethandrolone in the Successful Management of Anorexia and "Weight Lag" in Children, Scientific Exhibit presented at the Annual Meeting of the American Academy of Pediatrics, Chicago, Oct. 20-23, 1958.

60-11-4

Pediatric Urology

with Special Reference to Abdominal Masses in Infants and Children

THEODORE R. FETTER, M.D.[†]
Philadelphia, Pennsylvania

The discovery, diagnosis, and treatment of abdominal masses in infants and children presents a challenging problem to the pediatrician, surgeon, and urologist. Oftentimes helpful information may be gained by a careful history from the parents and a methodical physical examination of the child. When this is combined with a few well-chosen laboratory studies, four out of five cases may be correctly diagnosed and the proper treatment quickly instituted.

Since approximately one-half of the palpable abdominal masses in infants and children are of urinary tract origin, an acute awareness of these entities is a prerequisite to the intelligent handling of this problem. Even more important is the potential threat by these masses to the life of the child unless prompt and vigorous therapy is begun without delay.

Generally abdominal masses in infants and children may be divided into two categories: 1) those of genitourinary tract origin, and 2) those of extra genitourinary tract origin.

ABDOMINAL MASSES IN INFANTS AND CHILDREN

I. Abdominal Masses of Genitourinary Tract Origin
  A. Hydronephrosis
    1. Obstruction at the ureteropelvic junction
    2. Ureteral obstruction with hydroureter
    3. Ureterocele
    4. Ureteral reflux
  B. Cystic Disease of the Kidney
    1. Polycystic
    2. Multicystic
    3. Multilocular
    4. Multiple
    5. Solitary
  C. Neoplasms
    1. Wilms' tumor
    2. Carcinoma of the adrenal cortex
    3. Adenocarcinoma of the kidney
  D. Palpable Bladder
    1. Meatal stenosis
    2. Posterior urethral valve
    3. Urethral stricture
    4. Vesical orifice contracture
  E. Trauma
    1. Perinephric hematoma
    2. Rupture of renal pelvis
    3. Rupture of bladder
    4. Fractured pelvis with bleeding into bladder
    5. Rupture of urethra—extravasation
  F. Congenital Malformations
    1. Urachal cyst
    2. Horseshoe kidney
    3. Ectopic kidney
    4. Reduplication
    5. Solitary kidney—various shapes and positions
    6. Extrophy of the bladder
  G. Infections
    1. Perinephric abscess
    2. Pelvic abscess of genitourinary tract etiology
II. Masses of Extra Genitourinary Origin
  A. Retroperitoneal Lesions
    1. Neoplastic
      a. Sympathicoblastoma
      b. Lymphoma, lymphosarcoma, reticulum cell sarcoma, etc.
      c. Sarcoma, fibrosarcoma, rhabdomyosarcoma
      d. Teratoma, teratocarcinomas (unattached retroperitoneal tumors)
      e. Unclassified tumors
    2. Infections
      a. Retroperitoneal abscess
      b. Psoas abscess
  B. Intraperitoneal Lesions
    1. Neoplastic
      a. Primary liver neoplasms
        Hepatoma, embryonal carcinoma
      b. Gynecological neoplasms
        Dermoid cysts, teratoma of ovary
      c. Gastrointestinal neoplasms
        Lymphomas, carcinoids, adenomas, adenocarcinoma

---

[*] Presented at the Mid-South Postgraduate Medical Assembly, seventieth annual session, February 9-13, 1959, Memphis, Tenn.

[†] Nathan Lewis Hatfield Professor of Urology, Jefferson Medical College, Philadelphia, Pennsylvania.

   d. Mesothelioma of peritoneum
2. Non-neoplastic
   a. Gynecological lesions
      Ovarian cysts, congenital malformations
   b. Gastrointestinal lesions
      Pyloric stenosis, appendiceal abscess
   c. Splenomegaly
   d. Hepatomegaly
   e. Cysts
      Mesenteric, omental, pancreatic, etc.

In modern day medicine, there are many diagnostic tools available to the urologist for the differential diagnosis of these masses and for the study of urinary tract disease in general.

EXAMINATIONS USED IN EVALUATION OF RENAL DISEASE

1. Urinalysis
2. Dye excretion
   a. P.S.P.
   b. Indigo carmine
3. Individual renal function tests
   a. Glomerular filtration rate — inulin, mannitol
   b. Tubular function
      1) Concentrating power (no fluids 24 hours). May be dangerous
      2) Diluting power (after 1 liter of water)
      3) Maximum tubular reabsorptive capacity (glucose)
      4) Maximum tubular secretory capacity
         diodrast clearance
         para-aminohippurate (P.A.H.)
         P.S.P.
   c. Renal plasma flow
      para-aminohippurate (P.A.H.)
4. Blood and retention tests
   a. Urea nitrogen
   b. Serum uric acid
   c. Creatinine
5. Electrolyte excretions
6. Excretory urography
7. Retrograde urography
8. Cystoscopy and differential function
   P.S.P., electrolyte excretion, urine volume
9. Radioactive diodrast renogram
10. Aortography
11. Retroperitoneal air insufflation
12. Renal biopsy (preferably under direct vision)
13. Fundoscopic examination

In the differential diagnosis of masses of renal origin and those of extra genitourinary origin, certain generalizations can be made.

ABDOMINAL MASSES OF GENITOURINARY TRACT

Of all genitourinary tract masses that present themselves in infants and children, hydronephrosis is the most common, forming approximately 40 per cent of the total.

A. Hydronephrosis

1. Obstruction at the ureteropelvic junction
2. Ureteral obstruction with hydro-ureter
3. Ureterocele
4. Ureteral reflux

Hydronephrosis large enough to produce a mass is often accompanied by fever, abdominal pain, pyuria, and albuminuria. The site of obstruction may be anywhere along the urinary tract from the renal pelvis to the urethral meatus. If the obstruction is at the vesical orifice or below, there will be a bilateral hydronephrosis. The bladder will then be palpable abdominally. The renal mass is usually round, somewhat firm and moves with respiration. Examination of the external genitalia may disclose a meatal stenosis which may itself be the cause for obstruction. Meatotomy will be necessary prior to endoscopy in these patients.

In any case of suspected hydronephrosis the patient must have a complete urologic study, including evaluation of renal function, I.V. Urogram (if renal function is sufficient), and cystoscopy. A

FACTORS IMPORTANT IN DIFFERENTIAL DIAGNOSIS

(After Melicow, et al)

	Masses of Renal Origin	**Extra-GU Masses**
Location	Confined to flank	May extend beyond midline
Movability	Move with respiration	Relatively fixed
Shape	Spherical	Often nodular
Film of Abdomen	Renal outline enlarged	Renal outline usually displaced but normal in size and shape unless invaded
Calcification	Usually not calcified except renal calcinosis	Often present
Urogram	Renal collecting system often distorted	Renal collecting system rarely distorted but ureter often displaced

ureteral catheter passed to the renal pelvis will return a persistent steady drip of urine showing retention. An intravenous urogram pre-cystoscopically will often suggest hydronephrosis, but when renal function is low, the kidney may not concentrate the dye. In cases of renal duplication, one pelvis may be well demonstrated and the other hydronephrotic pelvis non-visualized, sometimes leading to an erroneous diagnosis. This illustrates the possible error of performing renal surgery on the basis of excretory urography findings alone. It is especially important that treatment be instituted early for the best prognosis. As the hydronephrosis progresses, first the renal pelvis enlarges without affecting the calyces. Later the major calyces become dilated, blunted, or rounded and the minor calyces may even disappear. Ultimately the major calyces become greatly dilated, renal tissue is destroyed by pressure atrophy, and the kidney becomes a thin walled sac of fluid. These changes progress more rapidly when the renal pelvis is the intrarenal type.

The causes of obstruction at the uretero-pelvic junction include:

CAUSES OF OBSTRUCTION AT THE U-P JUNCTION

Congenital or acquired
  1. Abnormal ureteral insertion
  2. Stricture at pelvic outlet

Congenital
  1. Renal anomalies of number, form, location, size, etc.
  2. Accessory renal vessels

Acquired
  1. Calculus
  2. Pelvic outlet blockage by intrarenal or extrarenal neoplasm
  3. Ptosis
  4. Trauma
  5. Infection—especially long-standing
  6. Aneurysm of renal artery (rare)
  7. Stress hypertrophy of pelvic and calyceal musculature

In addition there are many reasons for obstruction along the ureter. These may actually have progressed to the point where the ureter itself is palpable abdominally.

URETERAL OBSTRUCTION WITH HYDRO-URETER

(after Campbell)

A. Congenital or acquired
  1. Stricture
  2. Stenosis
  3. Atony
  4. Cystic dilatation
  5. Kinks
  6. Angulations
  7. Diverticulum

B. Congenital
  1. Anomalies of number
  2. Anomalies of termination
  3. Valves and folds
  4. Ureterocele
  5. Vascular blockage
  6. Torsion

C. Acquired
  1. Calculus
  2. Inflammation—ureteritis, periureteritis
  3. Longstanding infection
  4. Trauma
  5. Ligation
  6. Extraureteral masses, fibrous bands or enlarged glands which compress the ureter
  7. Fecal distension of rectum

Congenital *ureteral stricture* is one of the most common findings in children with chronic pyuria. This most commonly occurs at the uretero-vesical junction (52%), the uretero-pelvic area (38%), and elsewhere in the ureter (10%). Oftentimes this ureteral stricture is bilateral (25%). These children are pale and pasty and often poorly developed because of renal damage. Infection may set in and the clinical picture becomes one of chronic pyelonephritis.

The *ureterocele* is actually an intravesical ballooning of the lower end of the ureter, with involvement of all the component layers of the ureteral wall; however, the middle muscular layer is usually scant. Ureterocele has been observed in one of thirty children with persistent pyuria, and thus is much more common than generally accepted. Right and left sides are equally involved. In about 15 per cent of the cases, the condition is bilateral. It is four times as common in females as in males. In two-thirds of the cases of reduplicated pelvices with ureterocele, the ureterocele drains the upper pelvis. The chief problem is obstruction of drainage to the uretero-vesical orifice with resultant hydroureter and hydronephrosis.

Ureteral *reflux* can be demonstrated conclusively only by cystograph. The history is sometimes suggested by a history of renal pain on voiding although commonly this is not present. Ureteral reflux is most often due to infection which converts the ureteral meatus and intramural ureter into a rigid or semi-tube. This in turn interferes with the normal uretero-vesical valve mechanism. As this process continues hydroureter and hydronephrosis ensue. When these are longstanding, chronic infection will often produce a contracted scarred pyelonephritic kidney. Vesico-ureteral reflux results from lower urinary tract obstruction—such as vesical orifice contracture, posterior urethral valves, and urethral stricture, or from spastic neuromuscular disease of the urinary tract.

B. Cystic Disease of the Kidneys (after Melicow, et al)

A. POLYCYSTIC bouts of fever, anemia, hemaauria, nausea, albuminuria	Bilateral flank masses, hypertension, NPN elevated	Characteristic bilateral bizarre pyelocalyceal distortion
B. MULTICYSTIC Painless mass, may have slight discomfort, mild diarrhea or constipation	Unilateral flank mass, movable, non-tender	Functionless kidney with atretic or fibrosed ureter
C. MULTILOCULAR (Same as B)	(Same as B)	Pyelocalyceal distortion resembling Wilms' tumor
D. MULTIPLE (Same as B)	(Same as B)	If bilateral may resemble polycystic kidney
E. SOLITARY (Same as B)	(Same as B)	May resemble Wilms' tumor or hydronephrosis

Polycystic kidneys are found in approximately one in two hundred-fifty patients. There is a distinct hereditary influence, but no difference in sex distribution. The condition is generally bilateral although the incidence of unilateral polycystic disease varying in different reports from 4 per cent to 13 per cent is probably too high. The polycystic kidneys are generally of the same size although occasionally there is a considerable difference in size and weight. On occasions, one polycystic kidney has been removed with the discovery years later that the opposite kidney is also polycystic. This may account for the considerable variation in the incidence of unilateral polycystic disease. There are two general types of polycystic disease, 1) infantile, and 2) adult. The anatomic basis for the separation is that the polycystic kidneys of adults have much more functioning tissue than the infantile form, thus permitting the survival of the patient to middle life. Splenic, hepatic (33%), and pancreatic (9%) cystic disease has been reported accompanying polycystic renal disease. There is also a definitely greater incidence of other urological anomalies in these patients.

Careful questioning will disclose a family history of polycystic disease in one-third to one-quarter of the cases. Certainly if one member of the family is discovered to have polycystic disease the other members deserve the benefit of an excretory urographic study.

Pathogenesis of polycystic kidney is unknown, although one theory (Hidebrant) hypothesized that there was failure of union between the metanephroblastemic elements (glomeruli), and the collecting tubules originating in the mesonephric (Wolffian) ducts. This faulty union may result in cystic formation. This explanation is by no means agreed upon. The cystic fluid is not urinous but generally watery, yellow or brown, but may be colloid, mucoid, purulent, or bloody. It may contain cholesterol, calcium oxalate, blood or pus.

Symptoms: Congenital bilateral cystic disease may be undiscovered until necropsy. Sometimes the disease is discovered by urogram in an asymptomatic relative of a patient with known congenital polycystic disease.

The symptoms are generally those of nephritis. These result from progressive renal failure due to parenchymal destruction by compression. As renal insufficiency progresses, the signs of uremia appear, as evidenced by nausea, weght-loss, anemia, and headache. The anemia is probably similar to the anemia of uremia secondary to bone marrow depression.

These debilitated patients frequently die from intercurrent infections, either renal or pulmonary. Generally when the disease is discovered in childhood, the prognosis is especially poor. On occasions symptoms of pain, hematuria, pyuria, or tumor may be the presenting symptom. Pain results from the weight of the organ on the renal pedicle. Acute ureteral angulation or passage of blood clots may cause ureteral colic. Hematuria is present in many of these cases, probably secondary to infection or nephritis.

Diagnosis: The palpation of a large somewhat nodular but cystic mass in an infant or child particularly when a mass is found bilaterally, should create an index of suspicion. The P.S.P. is usually diminished and the N.P.N. is elevated. Hematuria (75%), albuminuria (90%), and poor renal concentration are often present.

The I.V.P. (if renal function is high enough) will show a bizarre, greatly varying picture. A malignant renal tumor in contradistinction is rarely bilateral and part of the pelvis is likely to be normal, whereas, with polycystic disease the entire outline is altered. There is apt to be calyceal shortening, obliteration, compression or elongation with oval or crescentic outline of the calyces. The renal pelvis is generally distorted, compressed, obliterated, or dilated. There may be superimposed secondary changes due to infection.

Treatment of the uncomplicated cases is generally the treatment of nephritis unless surgical intervention is needed because of stone or severe infection. Generally, surgery is contraindicated except as a last resort.

Solitary cysts are rare in infants and are of no great significance unless they become large enough to be felt abdominally. By extreme enlargement they may cause constipation or suggest ovarian cyst in the female. The chief symptom of a large congenital solitary cyst is the painless palpable mass although there may be transient hematuria. These cysts are filled with clear, serous, or colorless light amber fluid and usually are located at the lower pole (68%) or the upper pole (23%) and occasionally in the central portion (9%). (Brassch and Hendricks).

An I.V.P. will show a localized usually smoothly rounded or crescentic pelvic filling defect or pyelocalyceal distortion due to compression. Rarely the cyst wall becomes calcified to appear as a large ring. Treatment is excision of the cyst unless there has been pronounced renal destruction. Rarely spontaneous or traumatic rupture of these large cysts occurs. Then there is sharp pain and often collapse. Prompt operation (usually nephrectomy) is indicated.

C. Primary Neoplasms of the Kidney

(after Campbell)

- A. Parenchyma
  - 1. Benign
    - adenoma, fibroma, hemangioma, lipoma
  - 2. Malignant
    - a. carcinoma
    - b. embryoma
    - c. hypernephroma
- B. Pelvic
  - 1. Benign
    - angioma, papilloma
  - 2. Malignant
    - epithelioma
- C. Capsule
  - 1. Benign
    - fibroma, lipoma, adenoma
  - 2. Malignant
    - sarcoma, fibrosarcoma

Primary neoplasms of the kidney: In children, with the exception of the eye, the kidney is the organ most frequently affected by malignant tumor. Renal tumor accounts for 20 per cent of all cancers in children, while it constitutes only 0.5 per cent in adults. Nephroblastoma (Wilms' tumor) is by far the most common malignant renal tumor in infancy and childhood, the average age incidence being three to four years. There have been several reported cases in the same families in which hereditary appears to play a definite part. The presenting symptom in over 80 per cent of the cases is a spherical mass confined to the flanks which may increase rapidly in size due to hemorrhage internally. Other signs and symptoms include pain (33%), vomiting, gross hematuria (20%), and hypertension. The excretory urogram will show anything from absence of excretion to varying degrees of distortion of the pyelocalyceal system. An excretory urogram should be done in every case to determine the presence and normality of the contralateral kidney, and to differentiate other renal lesions previously mentioned. Calcification of these tumors is extremely rare and metastasis primarily to lungs but not to bones is the general course. In contradistinction sympathicoblastoma often becomes calcified, usually metastasizes to bone (especially skull and femur) and rarely metastasizes to the lungs.

Carcinoma of the kidney is most rare in the younger age groups. Metastasis rarely occurs until late in the disease but is often present in patients when first examined. Metastasis occurs by the lymphatics, blood stream, and by direct extension with preference for the lungs and long bones.

There are in addition a number of benign and malignant renal tumors which may occur in infancy and childhood, including fibroma, lipoma, adenoma, papilloma, angioma, epithelioma, and sarcoma.

D. Palpable Bladder in Infants and Children

- I. Urethra
  - A. Congenital
    - Posterior urethral valves
    - Abnormal urethral openings
  - B. Acquired
    - Polyps
    - Trauma
    - Calculi
    - Tumor
    - Extra-urinary masses
  - C. Congenital or acquired
    - Phimosis
    - Meatal stenosis or atresia
    - Stricture

        Cysts
        Diverticulum
        Hypertrophied verumontanum
        Hydrocolpos
- II. Bladder
    - A. Congenital
        - Anomalies (e.g. extrophy)
    - B. Acquired
        - Tumor
        - Prostatic enlargement
        - Prostatic neoplasm
        - Calculi
        - Foreign bodies
        - Extravesical masses
    - C. Congenital or acquired
        - Contracture of vesical neck
        - Hypertrophy of vesical neck
        - Median bar
        - Median lobe
        - Hypertrophy of interureteric ridge
        - Diverticulum
        - Neuromuscular disease

With obstruction at the vesical outlet or in the urethra, the bladder functions for a variable period of time as a protective buffer or cushion to protect the ureters and kidneys from full urinary back-pressure ill effects. As the obstruction continues, bladder wall trabeculations occur due to the work hypertrophy. As the obstruction persists and increases, there comes a time when the bladder can no longer compensate, whereupon it dilates and becomes palpable abdominally as a suprapubic mass. If the obstructive process continues, eventually the upper tracts are also affected by this back pressure. The commonest cause of congenital urinary tract obstruction is the one which is most accessible to physical examination, namely meatal stenosis. This usually passes unnoticed until urinary infection intervenes or instrumentation is attempted. This condition occurs both in the males and females but more commonly in males. There may be obstruction anywhere along the course of the urethra but the vesical orifice itself is second in incidence only to meatal stenosis. Other less common but equally devastating obstructive lesions below the bladder include congenital hypertrophy of the verumontanum and posterior urethral valves of which there are several types. All of these produce similar late results, namely bladder decompensation, hydroureter, and hydronephrosis. However, there is an even larger group in which there is no palpable suprapubic mass, but merely a few ounces of residual bladder urine. In this group there is definite lack of subjective urinary symptoms. The chief difficulties are failure to gain weight, malnutrition, diarrhea, and vomiting.

Laboratory studies will disclose a mild uremia and acidosis which respond excellently to removal of the obstructing tissue providing renal destruction has not progressed too far. A diagnostic clinical test that may be used prior to surgery is retention urethral catheter drainage. In any case it is important to realize that in young infants renal function is poorly developed as compared with the adult and less renal reserve is present.

E. Trauma

1. Perinephric hematoma
2. Rupture of renal pelvis
3. Rupture of bladder
4. Fractured pelvis with bleeding into bladder
5. Rupture of urethra with extravasation

Accidents kill more children after infancy than any single disease (17 per 100,000). Of these, injuries to the urogenital system form a sizeable group. The kidneys are more commonly injured than any other urinary tract structure in children. The relative fixation of the right kidney by the liver explains the higher incidence of right renal injuries. The normal mobility of the kidneys permits them often to escape the full force of a blow. In children the paucity of perirenal fat as compared to the adult explains the vulnerability of this organ. Injuries include all gradations of contusions, lacerations, ruptures, crushing, and penetrating wounds. The signs and symptoms vary from microscopic hematuria to marked hematuria with shock, anuria, flank mass, and CVA pain.

The physical examination must be done with gentleness in order to prevent further renal trauma. The presence of intra-abdominal injury and muscle guarding may hide otherwise apparent renal injury. An accurate record of the patient's vital signs and clinical progress must be kept in order to follow his progress. If the patient voids light red blood an attempt to discover any lower tract injury must be made. The absence of hematuria may suggest:

1) injury not involving the renal pelvis,
2) complete laceration or transection of the ureter has occurred,
3) the ureter is plugged by clots.

X-rays of the abdomen and excretory urography should be taken as soon as the condition of the patient warrants it. In the presence of shock, of course, the excretory urogram is of no value. Excretory urography will establish that two kidneys are present, show skeletal fractures, disclose alterations in the psoas shadows and possibly reveal unsuspected urological complications, like renal calculi. The demonstration of one uninjured kidney that is adequately functioning may greatly affect the subsequent management of the patient. The pyelogram may vary anywhere from normal in mild renal contusion to complete extravasation of dye into the retroperitoneal space. If the urogram is unsatisfactory, cystoscopy with indigo carmine injection may become necessary.

Treatment should include antibiotics, blood, I. V. fluids, analgesic tetanus antitoxin and bedrest according to need. If there is:

1) lowering of blood pressure, increase of pulse, lowering of hemoglobin and hematocrit,
2) continued filling of the bladder with clots,
3) perirenal extravasation,
4) increasing flank mass,

surgery is indicated at once.

The probability of bladder rupture during trauma varies directly with its distention. A full bladder may rupture intraperitoneally or extraperitoneally, and thus produce symptoms accordingly.

F. Congenital Malformations

1. Urachal cyst
2. Horseshoe kidney
3. Ectopic kidney
4. Reduplication
5. Solitary kidney—various shapes and positions
6. Extrophy of the bladder

Urachal cysts result from failure of obliteration of the allantois, each end of the canal becoming closed. These cysts which are more often found in the lower end of the urachus may attain great size and suggest intra-abdominal tumor. This condition is relatively rare and the incidence in males is three times that in females. They may become infected and produce local abscess and fever. They may drain at the umbilicus, into the bladder or intraperitoneally.

The horseshoe kidney and anomalies of renal size, shape and position are usually diagnosed with ease following excretory urography and/or retrograde pyelogram. If these studies are performed the mistaken removal of an ectopic renal mass will be obviated. Extrophy of the bladder may be diagnosed by physical examination.

G. Infections

1. Perinephric abscess
2. Pelvic abscess of genitourinary tract etiology

Perinephric abscess may develop following trauma, stones, tumor, renal rupture, ureteral perforation after instrumentation, or urinary obstruction. In over half of the cases primary infections of the kidney are present; however, perinephric abscess may be blood borne from any other area in the body. The most common sites are cutaneous, i.e., furuncles, carbuncles, wound infections, etc., but any other area may be the instigator, including osteomyelitis, respiratory infections, appendicitis, and others. The most common organism is staph aureus (90% of the cases), but other organisms include streptococci, pneumococci, E. coli, and many others. At times a full month elapses between the initial insult and clinical symptoms. The symptoms vary greatly but usually fever, pain and local tenderness are present. There often are no urinary symptoms. Inflammatory involvement of the lumbar plexis commonly causes referred pain to the hip, knee or thigh.

The diagnosis is made by a careful history of preceding infection and physical examination. X-rays generally disclose a scoliosis of the spine with concavity toward the affected side and obliteration of the psoas muscle shadow. Prognosis is greatly dependent on a rapid, accurate diagnosis and prompt incision and drainage, with liberal use of antibiotics.

A pelvic abscess due to genitourinary causes is sometimes seen following surgery, urinary extravasation, or severe suppurative pericystitis. The treatment again is prompt incision and drainage with liberal use of antibiotics, and supportive measures.

II. MASSES OF EXTRA GENITOURINARY ORIGIN

I shall merely touch on these lesions in the limited time available in order to present a few points in differential diagnosis.

Extrarenal tumors may resemble Wilms' tumor but the excretory urogram will generally show the renal silhouette to be not enlarged but often displaced. In addition there is no pyelocalyceal distortion unless invasion is present. Lymphosarcoma and Hodgkin's disease usually have lymphadenopathy in other parts of the body. Hepatic tumors are rare in children, and where they occur often cause jaundice and disturbances in the liver profile. Ovarian tumors also are very rare in children and are diagnosed by bimanual examination with one finger in the rectum. Tumors of the spleen and leukemic infiltration often may be diagnosed by peripheral blood smears. Pancreatic tumors and cysts are usually more centrally placed and may be calcified.

Except for Wilms' tumor, neuroblastoma is the commonest retroperitoneal malignant tumor in children. Although this medullary tumor may cause considerable outward and downward displacement of the kidney, it seldom invades the kidney proper. This mass commonly extends past the midline and has a nodular, fixed quality. Metastasis is usually to bones (particularly skull and femur) and rarely to lungs. This is the direct opposite of

Wilms' tumor spread. Wilms' tumor rarely spreads to bone and then only to the pelvic bone. Its primary spread is to the lungs.

SUMMARY

1. The discovery, diagnosis and treatment of palpable abdominal masses in children and infants presents a challenging problem to the pediatrician, surgeon, and urologist.
2. Almost one-half of all palpable abdominal masses in infants and children are genitourinary in origin.
3. The kidney is the organ which produces more palpable masses than any other abdominal organ or even tract in this age group.
4. The potential seriousness of these lesions demands prompt, accurate diagnosis and appropriate therapy.
5. Approximately 80 per cent may be correctly diagnosed by a careful history, physical examination, and a few well-chosen laboratory tests.
6. A presentation of the more common genitourinary lesions and important differential diagnostic points has been made.

BIBLIOGRAPHY

Allen, A.: The Kidney. Grune and Stratton, New York, 1951.

Annamunthoda, H. and Hutchings, R. F.: Nephroblastoma (Wilms' Tumor): Case Report, Journal of Urology, 78: 197-204, 1958.

Beneventi, F. A., and Twinem, F. P.: Neuroblastoma. Journal of Urology, 60: 235-241, 1948.

Campbell, M.: Urology. Saunders, Phila., 1954.

Campbell, M.: Clinical Pediatric Urology. Saunders, Philadelphia, 1951.

Felderman, E. S., and Fetter, T. R.: Patent Urachal Cyst. Journal of Urology, 79: 767-770, 1958.

Fetter, T. R. and Warren, K. C.: Congenital Urinary Tract Obstructions in Children. Journal of Urology, 75: 173-189, 1956.

Gross, Robert: The Surgery of Infants and Childhood. Saunders, Philadelphia, 1953.

Herbut, P.: Urological Pathology. Lea and Febiger. Philadelphia, 1952.

Hooper, Joseph W.: Cystic Diseases of the Kidney in Infants. Journal of Urology, 79: 917-924, 1958.

Kjellberg, S., Ericsson, N. and Rudhe, U.: The Lower Urinary Tract in Childhood. The Year Book Publishers, Inc., Chicago, 1957.

Melicow, M. M.: Classification of Renal Neoplasms: A Clinical and Pathological Study Based on 199 Cases, Journal of Urology, 51: 333, 1944.

Melicow, M. M. and Uson, A. C.: Abdominal Masses in Infants and Children. Presented at the American Urological Association Meeting in New Orleans, May, 1958.

Nesbit, R. M. and Adams, F. M.: Wilms' Tumor, A Review of 16 Cases, Journal of Pediatrics, 29: 295, 1946.

Nelson, W.: Textbook of Pediatrics. Saunders. Philadelphia, 1951.

Communism in one century has gained sway over more people than Christianity in twenty.

Problem Number One

Do you know that one out of every ten persons in Mississippi and the nation have been — will be — or presently are in a mental hospital? This means that every fifth family has an immediate member who is — has been — or will suffer mental illness during their lifetime. With this awareness comes the knowledge that mental illness is the number one health problem of the nation. In Whitfield alone there are 4100 patients; in East Mississippi Hospital, 1600. Most of these patients can be cured. The state of Kansas has proved this by returning 80 per cent of their mentally ill patients within one year to their homes *cured!* With properly trained staff and better facilities we know that Mississippi could do the same.

At Whitfield there are 4100 patients and 5 psychiatrists — 800 patients to *one* psychiatrist! No wonder the case load increases each year. Over 50 per cent of *all* patients in *all* hospitals are hospitalized for mental illness. This means that there are more mentally ill patients occupying hospital beds than all other diseases combined!

A Program for Pre-Marital Counseling

BLANCHE LOCKARD, M. D.†
Jackson, Miss.

IN THE NEWSPAPERS and magazines we are constantly reading of the inadequacy and backwardness of our educational system today. The need of a pre-marital program is quite evident of our lack in meeting the sexual education which is needed by the youths of today. By the time an individual is ten to twelve years of age he should be adequately prepared in all sexual matters encompassing the physical, the psychological and the spiritual. The environment of today changes so rapidly for the youths that if we, as adults, do not prepare them for their environment, nor ours, how can we expect them to be able to adjust and be individuals capable of meeting society's mores? I apologize for having to develop a program of pre-marital counseling, for it is my opinion that all sex education and preparation for family living should be completed by the time an individual is teen-age. We talk quite glibly today of the delinquency of our youth and read with sincere regret the increasing incidents of crime among the young people, but we as educators are doing little to aid the youth of today to be able to meet this ever-changing environment. This is especially true in the field of sex education. We can no longer judge our youth on the environment of twenty years ago because that environment no longer exists. Today the young people who remain chaste prior to marriage do so out of convictions and constraint directed from within, not from inhibitions by former rules and arrangements of a previous generation. Decisions rest much more clearly in the hands of the person concerned than ever before[1]. One easily sees this is true because of the great freedom which the youths of today have. Ideally, sex education should begin in the home at the time the child is approximately three years of age and should be completed by the time the child is ten to twelve years of age, if he is to meet his social needs of today.

In any program of education which deals with an individual and his environment, his psychosomatic health must be considered in three phases, the individual's physical health, mental health and spiritual health. It is only with these integrated phases of health can we develop into a well adjusted, happy individual. And this is especially true in one's sexual adjustment. This short term program for pre-marital counseling has been established in an attempt to meet these health needs in sex education.

On the first visit of the patient, which should come at least six to eight weeks prior to the marriage, a complete history, including the previous sex education, is taken and she is given a thorough physical examination. The laboratory work-up includes a complete blood count, urinalysis, and the serology. At this time she is advised of the plan of the program and is told that her fiancé is welcome to return with her for individual and group counseling. The following books are recommended for reading:

A Marriage Manual, by Hannah and Abraham Store[2]

Ideal Marriage—Its Physiology and Technique, by Van De Velde[3]

Planning for Marriage, by O. M. Butterfield[4]

Sex Without Fear, by S. A. Lewine and John Gilmore[5]

During the second visit the patient takes the Sex Knowledge Inventory Test, Form X, developed by Gelolo McHugh[6]. This is a counseling tool which reveals to the counselor the attitudes of the patient concerning sex, her basic anatomical knowledge and many of the misconceptions she may have concerning sexual adjustment.

The third portion of the program deals with a question and answer type of interview and a discussion of sex and the role of family life in our society. This is often patterned for the individual's and her fiancé's (if he returns for counseling) needs as revealed by studying the Sex Knowledge Inventory Test. The most frequent questions asked by the young women prior to marriage concern douching and contraceptives which are fully discussed.

During the entire program the normality of sex and sex relations is emphasized. Sex should no longer be considered a sin or sinful. It is a normal function and encompasses the physical, psychological and spiritual behavior of man's and woman's relationships. As in any human's function it can be, and is, made sinful by the individual in its misuse. No doubt the reason for this misuse is a failure to appreciate the value of this emotional force for the completion of man's inner happiness and results largely from a lack of proper sex education.

---

*Presented at the first Symposium on Psychosomatic Obstetrics and Gynecology at the University Medical Center, March 4, 1959, under the auspices of the Departments of Obstetrics and Gynecology and Psychiatry at the University of Mississippi School of Medicine.

†From the Department of Obstetrics and Gynecology, University Medical Center, Jackson, Miss.

At the time of the physical examination an attempt is made to give to the patient a concept of the normal relationship of the genital organs to the remainder of the body. She is told that these organs are part of her just as much as her eyes, her nose, her mouth and that God not only made her digestive tract for a purpose but her genital organs, which are certainly personal, but have been developed for the completion of man and woman, both for the physical and the emotional satisfaction as well as for procreation. There is no greater function of the individual if this is used in its accepted social plane according to the ideals of the individual and the ideals of the society in which she lives today. No greater happiness can result. I attempt to make this very simple for the patient by stating that as a child of two or three years of age she is taught what is to be put in her mouth and what not to be, and if you will recall we would not know this simple fact if we were not taught. She now must develop concepts and have correct attitudes with regard to sex which is needed to give her a basis on which to build happiness for the couple.

During the physical examination it is also important to determine whether the hymen is elastic and dilatable so that the first sexual experience of the individual will not be too painful. As often stated, the trauma of coitus with even moderate pain or bleeding may initiate vaginismus, dyspareunia and eventually fixed rigidity in the emotional immature virginal bride. If an inelastic hymen is found, one in which the index finger cannot be inserted without too much pain, I feel that this hymen should be dilated. This is discussed with the patient and I suggest that she use a cone-shaped centrifuge tube at home at night to dilate the hymen and that following this she use Tampax during her menstrual periods until her marriage. This will accomplish not only dilatation of the hymen but also get the patient used to something being inserted into the vagina. Occasionally a hymen is so taut and inelastic that a hymenectomy is necessary. If an incision of the hymen is to be done it is recommended that the fiancé know of the situation first and his permission be obtained. Other pelvic disorders such as leucorrhea, cervicitis, cervical polyps, etc., may be noted and therapy instituted.

During the counseling program an effort is made to emphasize the following points: I reiterate that sex is normal and that sex relations are for woman's satisfaction as well as for man's. That it is or should be a normal part of marriage. It is not the most important factor in their relationship but one of the most important factors and that other human relationships of adjustment, co-operation and consideration of the other individual are of great importance. I stress the individuality and the personality of each person. We frequently need it to be pointed out to us that there is no individual in the world like us; that we can not stand in other people's shoes. Our attitudes toward each other should not be one of criticism and judgment but one of understanding and of helpfulness. That love, in its true sense, is, "God is Love." There is no other power, and this includes the atomic power, that is greater than this Love and if we seek this unselfish, this forgiving, this understanding Love in marriage or in our social relationships with each other and grasp for this ideal, there would be little discord and little unhappiness. It is man's inner being, his emotions, his mental hygiene, his inner courage and understanding that is not being developed to meet his environment. It is only through realization of this and a seeking of each individual to improve his own inner being will man develop a greatness within himself and be able to meet the rapidly changing environment of today.

Another concept discussed is the "we" concept. In marriage it should be "we" against the world and when both individuals of the marriage can get this concept of "we" and not "I", and this comes only with positive effort, then a marriage is cemented. It may take years but if one recognizes the need to get this attitude of "we", and strives toward it, it can come more rapidly and greater happiness can be experienced. Too often the individual marries and attempts to bring into the new home the ideas of the in-laws, who if they do not have the right attitude concerning the couple, can easily place the stumbling blocks which tend to lead to dissatisfaction, unhappiness and finally a divorce.

In discussing intercourse, marital relations, foreplay, lack of response of women and orgasm, it is pointed out to the individual or couple that each of us has our ideals of what would be perfect and we rarely reach perfection. That if they realize that they are building an emotional life together it will grow through the years if they make a positive attempt in all their relationships to help the other get the most out of life, that they will attain more happiness than the average couple. The old saying, "That they married and lived happily ever after," does not come by itself. One of the reasons for our lack of imperfection and inability to reach our ideals is because as individuals we vary so greatly in our emotions. It is recommended that in sexual relations they discuss quite freely with each other their feelings, their sense of satisfaction or their lack of satisfaction, in order that the other can help. The union is more than a physical union; it is an emotional and a spiritual union. The personality of each of us, whether man or woman, is different. We differ widely in our emotions and our ability to express and feel these emotions. A person in his marriage must realize this difference in personality and make an effort to understand, cooperate and unselfishly attempt to help the other attain his inner happiness and satisfaction. I explain to the couple that there is no method to tell them in one, two or three steps what they can do to attain happiness, that the individual is so different what would please one would hardly please another, and it is this difference that they work out together through understanding and cooperation. In further counseling I urge that the couple have planned recreation together. That at least one night a week, if at all possible, be planned for recreation throughout their marriage.

A basis for spiritual health emphasizing marriage and marriage relations can be obtained from a study of the Bible and by counseling with the minister, who will probably marry the couple, or by a theologian who has special interest in the relationship of religion and theology to psychology and psychiatry. I attempt to point out these available sources in the community and to lay some basis of the Christian concept of sex, which is intended by God to fulfill a positive function in the life of mankind.

If the above program could be given to all premarital couples, I feel that the rate of divorces in our country and the unhappiness in family life and the communities would lessen to a great degree. In summary, I again emphasize that sex education at this time, just prior to marriage, comes too late. That education of our youths should begin as a child and be completed by the time they are ten to twelve years of age. Our changing environment, the freedom of youths, the rapidity of our living, is too much. Man's emotional or psychological inner being must grow to meet the needs of this rapidly changing environment.

BIBLIOGRAPHY

1. Hiltner, Seward, "Sex and Religion." Ladies Home Journal; p. 41; February, 1959.
2. Stone, Hannah and Abraham, *A Marriage Manual.* Simon and Schuster, New York, 1935.
3. Velde, Theodore Van de, *Ideal Marriage — Its Physiology and Technique.* Random House, New York, 1943.
4. Butterfield. Oliver McKinley, *Planning for Marriage.* Van Nostrand, Princeton, New York, 1956.
5. Lewin, S. A. and Gilmore, John, *Sex Without Fear.* Medical Research Press, New York, 1951.
6. McHugh. Gelolo, *Sex Knowledge Inventory Test.* Family Life Publications, Inc., Durham, N. C., 1950.

LIFE STORY

The leading site of cancer today is the colon and rectum. In 1958, 58,000 new cases were diagnosed.

The present 5-year survival rate for these cancers is less than 30%. This figure could be greatly increased by closing the very wide gap between *actual* and *possible* survival rates.

Earlier diagnosis is an immediate requirement. The American Cancer Society urges annual health checkups for all adults, and employment of digital and proctoscopic examinations of the rectum and colon by physicians, to find cancer in an early stage.

AMERICAN CANCER SOCIETY

Time-Saving Methods of Giving Antepartal Instruction and Support During Labor

WALTER H. SIMMONS, M.D.†
Jackson, Mississippi

My remarks are directed to you men doing obstetrics, who are interested in some form of an organized program of prepared childbirth. I will take only a few minutes to describe to you a program practiced by Dr. Bass, Dr. Kitchings and myself which has been in existence for about three years now.

There seems to be no generally agreed-upon name for such training and, like the treatment of nausea and vomiting in pregnancy, it would seem to mean that none is entirely acceptable. We hear it called "educated childbirth," "painless childbirth" and "natural childbirth." This latter, I think, has come in disrepute, especially with doctors, chiefly because of the widely held belief that in "natural childbirth" all analgesia is necessarily withheld. We speak of ours as "motherhood classes" or "exercise classes."

We have three registered nurses who have taken the instructor's class here at the University Medical Center, and I am quick to say that they deserve all credit as they do at least ninety-five per cent of the work involved in our classes. The *sine qua non* of any organized program, then, is to have at least one nurse with the aptitude and the desire to implement such a program. While we have had one of our own office nurses to stay with patients in labor for a good many years, we actually did not enter into an organized motherhood class until about three years ago when the four-year school was opened here.

Our nurses follow the manual, "Preparation for Childbirth"* by Mrs. Mabel Fitzhugh.

We hold each of two classes in the office waiting room for one hour each week. The course runs for seven weeks. We have throw-mats that we use on the floor and patients come dressed in "peddle pushers" or some such clothes.

We usually wait until the patient has passed the twelfth week of pregnancy before anything is mentioned. We do this because by this time the greatest danger of abortion is passed. Also, she really doesn't "feel pregnant" until at least twelve weeks and, more properly, when she begins to "show" and later, feel life. This statement is made with full consideration of the nausea and vomiting of early pregnancy when the patient psychologically doesn't "feel pregnant" so much as she feels "sick."

Special efforts are made to correct such misconceptions as harm coming from reaching the hands above the head, maternal impressions and other gross falsehoods. We explain that nowadays fetal abnormalities are less frequent than formerly and far more of them are correctible.

We feel that there are many other advantages of group instruction, many of them less tangible but no less real. The primagravida, especially, gains some measure of assurance by hearing other women express the same concern which she has and ask the same questions about which she has wondered. Since it is entirely informal, she frequently feels freer to ask the questions of an R.N. that she perhaps would not ask in the doctor's office. Of course, just the reverse is often true, also. She gains respect for the authoritative answers that the nurse instructor gives to her questions. And, having taken the course, she develops more confidence in the nurse instructor when she stays with her in labor. Then, too, the class actually has some social value. To many, it is enjoyed as a "night out with the girls."

There is no question but that to undertake to educate patients for such prepared childbirth is time consuming. However, if you choose so to prepare your patients, surely the group method is time saving.

These classes are certainly a source of much misunderstanding with patients as well as some physicians. This should be expected and one might gain some consolation by the quotation of an author unknown to me: "The gulf between intention and result is with us—always."

---

*Presented at the first Symposium on Psychosomatic Obstetrics and Gynecology at the University Medical Center, March 4, 1959, under the auspices of the Departments of Obstetrics and Gynecology and Psychiatry at the University of Mississippi School of Medicine.

†From the Department of Obstetrics and Gynecology, School of Medicine, University of Pennsylvania.

---

*Available at fifty cents each from: Mrs. Mabel Fitzhugh, 485 South 12th St., San Jose 12, Calif.

Elective Induction of Labor
Patient's Acceptance and Reaction

HARRY FIELDS, M.D.†
Jackson, Miss.

INDUCTION OF LABOR has been practiced for many years. It has gone through several cycles of physician acceptance and rejection.

In 1943[1], the administration of a dilute solution of pitocin intravenously was reported in the treatment of uterine inertia. After 1948[2,3] other reports appeared in the literature presenting results with the use of intravenous pitocin for the induction and stimulation of labor. This caused a tremendous reawakening of interest in induction of labor. Since 1950 many reports[4,5,6] have recommended the use of pitocin in dilute solution administered intravenously as an aid in the induction and stimulation of labor. Amniotomy has been included by many as an important part of the technique of induction. The conclusions of these reports indicate that induction of labor can be performed with success and safety if certain precautions are observed rigidly and certain developed techniques are followed precisely.

The study of induction of labor has progressed gradually, and has been developed on the physician level as a definite advance in obstetrical care. All of this investigation has been directed toward the physical safety of the patient and the infant and all efforts have been made to gain physician acceptance.

This phase of the problem of induction of labor has been more or less completed, and physicians understand the problems and potentials of this procedure and accept it as a beneficial adjunct in the complete care of the obstetrical patient.

It is now time to evaluate the patient's reaction to and acceptance of induction of labor, particularly elective induction. This "different" technique intrudes on a woman's most important role —that of childbearing. Although much effort has been expended on the physician "medical" level of this subject, practically no consideration has been given to the patient's feelings or reactions, the psychosomatic aspect.

Women have learned in their formative years to expect and to be prepared for certain experiences in childbearing. Anything that disturbs or alters this phase of their lives may have definite and lasting effects on them and their future childbearing efforts. It is therefore appropriate to restudy the subject of induction of labor, specifically elective induction, and attempt to evaluate the patient's reaction to and acceptance of this procedure, and its relation to the psychological stress of pregnancy.

Two thousand, nine hundred and thirty-two elective inductions of labor were completed at the Hospital of the University of Pennsylvania from January 1950 through December 1957. Of these, 97 per cent were private and 3 per cent were ward patients. Seven hundred and fourteen nulliparae (24.3 per cent) and 2218 multiparae (75.7 per cent) were induced during this period. These inductions were not medically or obstetrically indicated, but were performed on a purely elective basis.

The technique of induction included the administration of intravenous pitocin in dilute solution (10 units in 1000 cc. of 5 per cent glucose in water), and amniotomy after the cervix was dilated 2-3 cms. The full technique has been reported previously[7].

The results of this study indicate that induction is successful and safe when precautions and technique are carefully followed. Training and experience as well as adequate personnel and hospital facilities are necessary when oxytocin is used in the induction of labor[8].

These studies evaluated the medical and obstetrical aspects of induction of labor, without considering the psychological aspects in a statistical manner. The psychosomatic effect of pregnancy is receiving more and more attention in recent years. Psychoanalytic study by competent analysts has given us new insight into the problems concerning the psychological stress of pregnancy.

Donovan[9] states, "In a psychosomatic sense, pregnancy is a threat to every woman. There may be some physicians who would reject this statement as inconsistent with clinical experience. We have all known women who were sincerely overjoyed with their pregnancies. But, it is apparent that at a physical level the pregnancy is an endoparasite that depends completely for its survival upon the maternal reserves. If these reserves have been lowered by disease, the pregnancy may be an actual threat to the health of the woman. Even in a physically normal woman the somatic reserve is seldom such as to enable her to experience pregnancy in a symptom-free state. At a psychological level, pregnancy changes a woman's life by placing her more in the role of a giver. Temporarily or permanently, she must give up her physical comfort, her figure, and social or intellectual goals, and assume increased responsibility not only for nine months but for many years. The sacrifices required and the increased socio-biologic responsibilities of pregnancy are much greater for the woman than for the man. Any event which so changes a person's life constitutes a threat or stress to their previous equilibrium."

---

*Presented at the first Symposium on Psychosomatic Obstetrics and Gynecology at the University Medical Center, March 4, 1959, under the auspices of the Departments of Obstetrics and Gynecology and Psychiatry at the University of Mississippi School of Medicine.

†From the Department of Obstetrics and Gynecology, University Medical Center, Jackson, Miss.

"The psychological adaptive devices used by reasonably healthy women to meet the stress of pregnancy vary with the period of gestation. Perhaps the most common adaptive device used initially to meet the stress of pregnancy is identification. In psychoanalytic terms the pregnancy is absorbed into the woman's own ego. The woman preconceives the pregnancy emotionally as an integral part of herself. To her, 'the pregnancy is myself'."

In mid-pregnancy women derive considerable emotional gratification from their phantasies about the baby and this is another adaptive device which enables them to adjust psychologically to the continuing stress of pregnancy."

"As term nears even formerly complacent women may appear to become somewhat anxious. In most instances this anxiety is merely an eagerness to get 'it over with.' Near-term women chafe at maternity clothes, even though they are now more comfortable in such clothes; they are impatient at the restriction of a term abdomen. The phantasies have begun to pall and no longer are an adequate source of ego gratification. The woman's interests begin to turn outward again and she is now eager to get 'it over with' because she is eager to have the baby as a real rather than an imaginary object."

"The final period of stress before a woman actually sees her imaginary infant as a real baby is the waiting to 'go into labor.' This is frequently very trying and the source of much anxiety and frustration."

Any device which is safe and can lessen the stress of pregnancy is beneficial and desirable. Elective induction of labor can be interpreted as such a device. It has the advantage of relieving the "woman-in-waiting" of the responsibility and anxiety of recognizing labor. It allows her the opportunity to make convenient arrangements for her family and to arrange means of transportation to the hospital. It eliminates the fear of having the baby before arriving at the hospital, and assures her proper accommodations when she enters the hospital. In a word, induction of labor relieves the pregnant woman of the major stress of the latter part of pregnancy.

During the course of this study, several interesting impressions have been gained concerning patient acceptance of and reaction to elective induction of labor. For this reason the Psychiatric Department at the Hospital of the University of Pennsylvania has been consulted and advice and guidance sought to help interpret and organize this information. The following is a superficial evaluation of the psychosomatic aspects of elective induction. In reality they are merely impressions gleaned from a large clinical experience with induction of labor.

PATIENT ACCEPTANCE

Elective induction may be suggested or offered to a patient at any convenient time during pregnancy. An ideal opportunity may present itself when she first becomes aware of the uncertainty of going into labor spontaneously. After presenting the facts concerning induction to her, she must be told that not every pregnant woman is suitable for this procedure. The final decision is made at the end of pregnancy after pelvic examination and study has proved her to be a good candidate. However, she must be assured in advance that if she fails to qualify she is not abnormal or unusual.

Patients who are offered elective induction seem to fall into three categories:

1. Those who know all about induction of labor
    - a) Like it and want it
    - b) Don't like it and don't want it
    - c) Uncertain — these want explanation and encouragement, sanction or permission is given by 1) physician, 2) husband, or 3) mother.
2. Those who have heard of induction of labor, but don't understand it completely.
    - a) Will accept it after explanation and description.
    - b) Will not accept it after explanation and description.
    - c) Want encouragement from husband or mother; however, if either objects, these patients will refuse it.
3. Those who have never heard of it.
    - a) Will accept it unhesitatingly if physician recommends it.
    - b) Will not accept it because it is "new" and "different."

   c) May accept it after it is explained and encouragement, sanction or permission is given by 1) physician, 2) husband, or 3) mother.

Objections to elective induction are:

1. Unnatural
2. Fear because it has been discredited by:
   a) Mother—not successful in her day.
   b) Family physician—taught in school that induction was unsafe and represented meddlesome obstetrics.
   c) Friends who have had bad experiences.
3. Fear because of ignorance.
4. Fear of responsibility if anything goes wrong.
5. Can see no need or advantage since previous labors were satisfactory.
6. Mother, husband, or family physician objects.
7. Religious objections.
8. Fear of the technique of induction ("needles" or "breaking the water bag").
9. Fear that the infant will be "not fully developed."
10. Fear that induction won't be successful.
11. Fear that she or infant will be injured.

TABLE I
PATIENT ACCEPTANCE
1954 - 1957

Service	*Del.*	*Ind.*	*Percent*
A	782	477	61.0
B	714	346	48.4
C	719	256	35.6
D	530	182	34.3
E	809	222	27.4
TOTAL	3554	1483	41.7

In spite of these reactions, more than 90 per cent of those offered elective induction will accept it when it is adequately explained. Table I illustrates the degree of acceptance that can be achieved by those convinced that this procedure is beneficial for the patient and her infant. The over-all incidence of elective induction in this group might have been greater, but some patients scheduled for induction went into labor spontaneously before it could be accomplished.

To help achieve greater patient acceptance the following is an explanation for those who want to know more about elective induction.

1. Reason
   a) To prevent uncontrolled delivery
   b) For the peace of mind for one who has experienced such a delivery
   c) To prevent anesthetic accidents
   d) To assure constant physician attendance
   e) To maintain orderly hospital occupancy
   f) To allow sufficient time to organize family responsibilities
2. Advantages
   a) Physical advantages
      1. Successful
      2. Less pain or discomfort
      3. Shorter labors
   b) Relieves tension of waiting for labor
   c) Safety to mother and infant — constant care and more frequent examinations result in:
      1. Prompt diagnosis of prolapsed or nuchal cord
      2. Early detection of fetal distress
      3. Prompt diagnosis of premature separation of the placenta
   d) Convenience—patient and physician
      1. Patient can make necessary arrangements without tension
      2. Physician is available, relaxed and rested
3. Technique
   a) Frequent examinations at the end of pregnancy
   b) Admission to the hospital the night before when room is available
   c) Sedation, IV oxytocin, amniotomy
   d) Analgesia—can be asleep or awake during delivery

PATIENT REACTION

To evaluate patient reaction a group of electively induced patients were questioned two or three days following delivery. The questions were selected with the aid and advice of a psychiatric consultant. Although not enough patients have been interviewed to date to permit a large statistical study, the results in general indicate the following:

1. Most like it, will have it again, and recommend it for the following reasons:
   a) Relieved stress of going into labor during the last month of pregnancy.
   b) Simplified arrangements and transportation to hospital.
   c) Liked assurance of good hospital accommodations.
   d) Physician was present, someone in attendance.
   e) Less painful or no pain and shorter labors.
   f) More relaxed and rested after it was over compared to previous spontaneous labor.
2. Small percentage dislike it
   a) Nervous waiting for induction to start
   b) More painful and longer (thought it was painless and shorter). These women were usually unripe for induction.
   c) Infant not fully formed—born too soon (blame any infant abnormality on in-

duction).

d) Unnatural
e) Feeling of guilt
f) Religious bias
g) Not as easy or pleasant as previous spontaneous labors
h) Didn't like "needle in arm" or "breaking the water bag."

To substantiate the overwhelming favorable patient reaction to elective induction the records of all patients electively induced from January 1950 through December 1956 were reviewed to determine how many patients after being induced accepted it again in a subsequent pregnancy. Of 2497 elective inductions performed during this period, 304 (12 per cent) were repeat. (Table II)

TABLE II

REPEAT INDUCTIONS
(1950 - 1956)

	No.	*Percent*
Total inductions	2497	14.4
Repeat inductions	304	12.0

TABLE III

REPEAT INDUCTIONS
1950 - 1956

	Nullipara (614)		*Multipara* (1883)	
No. Inductions	*No.*	*Percent*	*No.*	*Percent*
2	106	17.3	161	8.50
3	15	2.5	20	1.05
4	1	.2	1	0.05
TOTAL	122	20.0	182	9.60

In this series 614 nulliparas were induced and of this group 122 were repeat inductions (20 per cent). Of these, 106 had two inductions, 15 had 3 inductions, and one had 4. Of 1883 multiparas induced there were 182 repeat inductions (9.7 per cent). Of these, 161 had 2 inductions, 20 had 3 inductions and one had 4. (Table III)

These figures might have been more striking since at least 10 per cent of the patients who accept elective induction go into labor spontaneously before the induction is started. The reason for this is the limitation of the number of elective inductions scheduled per day at the Hospital of the University of Pennsylvania. The number depends on the available personnel to give these patients adequate care. Although a patient is considered "ripe" for induction, she may wait for several days or a week before she can be scheduled for elective induction. During this waiting period she may go into spontaneous labor. In spite of this it is felt that scheduling a limited number of elective inductions depending on the available personnel to care for them, is still the best and safest precaution against complications.

DISCUSSION

In reviewing the status of elective induction it is obvious that it is successful and safe with the technique which includes intravenous oxytocin and amniotomy. Proper selection of patients and constant care during the induction by experienced personnel are essential to the prevention of complications.

In reports of any series of elective inductions the question is frequently asked as to the percentage of failures. In this series, 11 Caesarean sections (0.4 per cent) were considered failures since these patients were not delivered vaginally. In addition approximately 5 per cent of the elective inductions were discontinued because the obstetrician decided the uterus wasn't responding well enough to the intravenous oxytocin. This was usually interpreted as indicating that the patient was not ripe for induction. The decision to stop the induction was made before amniotomy was performed with no ill effects. This occurred more frequently in the early part of this study and rarely occurs at present. However, when it does occur it is probably more a deficiency of the physician than the method.

Patients who accept induction must be prepared should they go into spontaneous labor before they are ripe for induction. They may be assured that they will have ample time to make arrangements to come to the hospital, and need not fear having the baby before arrival. The knowledge that they will be told when to come to the hospital before labor starts seems to relax many near-term women and puts them completely at ease. If they do go into labor unexpectedly they take it lightly and seem to start labor more effectively since they haven't worried about it previously. Patients expecting to be induced are less disturbed by Braxton Hicks contractions and are less likely to be admitted to the hospital in false labor. Elective induction may thus be of benefit even to those who "jump the gun" and go into labor spontaneously.

Although elective induction cannot and should not be guaranteed to all pregnant women, it may be suitable in enough instances to establish it as an important adjunct in present day obstetrical care.

Elective induction is a procedure that is successful and has many advantages for the physician as well as the patient in a physical sense. As to the psychosomatic aspects, this problem has not yet been explored sufficiently to allow any definite conclusions. In this study although certain superficial advantages have been noted and some of the obvious stress of later pregnancy relieved, certain more profound questions must still be answered. Does acceptance of elective induction by the patient indicate resentment of the feminine role, or does it represent masculine identification? How much guilt does it engender? And finally, is it good psychologically to offer certain patients this crutch?

Many questions must be answered before the psychosomatic study of elective induction of labor is considered complete.

CONCLUSIONS

1. Elective induction of labor is an obstetrically accepted procedure for certain patients.
2. Education of physicians and patients is necessary to improve patient acceptance.
3. Benefits and advantages must be clarified and substantiated.
4. More study is necessary to evaluate the problem of patient reaction and psychological effect.

ACKNOWLEDGEMENT

I am indebted to Doctors Clyde Ward, Lawrence Brannon and Lydia Schut of the Department of Psychiatry of the Hospital of the University of Pennsylvania for their help in analyzing and organizing the psychiatric aspects of the above material.

BIBLIOGRAPHY

1. Page, E. W.: Response of Human Pregnant Uterus to Pitocin Tannate in Oil. Proc. Soc. Exper. Biol. and Med., 52:195, 1943.
2. Hellman, L. M., Kohl, S. G., and Schecther, H. R.: Pitocin—1955. Am. J. Obst. and Gynec., 59: 41, 1950.
3. Theobald, G. W., et al.: Post-Pituitary Extract in Physiologic Amounts; Preliminary Report. Brit. M. J., 2:123, 1948.
4. Lubin, S., Waltman, R., Tisdall, L., and Reynolds, S. R. M.: An Evaluation of Intravenous Pituitrin. Am. J. Obst. and Gynec., 64:248, 1952.
5. Page, E. W.: Usefulness of Intravenous Pitocin Infusions. West J. Surg., 62:125, 1954.
6. Douglas, R. G., Kramer, E. E., and Bonsnes, R. W.: Oxytocin, Newer Knowledge and Present Clinical Usage. Am. J. Obst. and Gynec., 73:1206, 1957.
7. Fields, H.: Elective Induction of Labor. Obst. and Gynec., 12: 276, 1958.
8. Fields, H., Greene, J. W., Jr., Franklin, R. R.: Intravenous Pitocin in Induction and Stimulation of Labor. Obst. and Gynec., 13:353, 1959.
9. Donovan, J. C.: Some Psychosomatic Aspects of Obstetrics and Gynecology. Am. J. Obst. and Gynec., 75:72, 1958.

Underwood Distinguished Service Oration

DAVID S. PANKRATZ, M. D.[†]
Jackson, Mississippi

I feel doubly honored at being chosen to deliver the Underwood Distinguished Service Oration. I say "doubly" because I count it a privilege to speak a memorial to the man we all loved and respected and with whom I worked for twelve years in close association on the State Medical Education Board. And I deem it an honor to have been selected for the high task by our state president, Dr. Guy Vise, who was one of my students at the University of Tennessee.

Many of you here today could sum up Doctor Underwood's accomplishments as well as or better than I. We are all familiar with the details of his life and have all had our memories recently refreshed by the deserved tributes written to our beloved colleague when he went to his eternal reward on January 9 of this year. I shall not, then, repeat these well-known facts although it is indeed possible that I shall occasionally borrow a felicitious phrase from some of Doctor Underwood's many biographers.

Doctor Underwood was a capable, astute and fearless leader. He was loyal to his friends, quiet, warm and compassionate with suffering humanity. He was one of America's outstanding medical statesmen, philosophers and humanitarians.

Born in Nettleton in 1882, he was a most distinguished native son of Mississippi. He brought local, national and international acclaim to his state.

"Know thyself," is one of the most famous quotations from the ancient philosopher, Socrates. Doctor Underwood's life demonstrates that he followed Socrates' admonition to know himself. He early developed a conviction that his greatest opportunity for service lay in public health. Yet he did not arrive at this conclusion without trial and error. He was first inspired to serve Aesculapius and Hygeia by the premature and tragic death of his mother who died in childbirth. It is touching to recall that in his maturity he had motive for rededication, if such were needed, when his daughter died of diphtheria as a young woman.

---

*Annual oration delivered before the ninety-first annual meeting of the Mississippi State Medical Association. May 12-14, 1959, Biloxi, Mississippi.

[†] Director and dean of the University of Mississippi Medical Center, Jackson, Mississippi.

For ten years after he had obtained his medical degree from the University of Tennessee in 1908, Doctor Underwood practiced general medicine in Aberdeen, Mississippi. During his daily rounds as a horse and buggy doctor, he saw how malaria, typhoid fever, tuberculosis, dysentery and diphtheria killed thousands of his fellowmen. It was at this point that he came to a vital decision like that of the traveler in Robert Frost's poem called "The Road Not Taken."

> Two roads diverged in a yellow wood,
> And sorry I could not travel both
> And be one traveler, long I stood
> And looked down one as far as I could
> To where it bent in the undergrowth;
> Then took the other, as just as fair,
> And having perhaps the better claim,
> Because it was grassy and wanted wear;

This grassy, as yet little traveled road was preventive medicine and public health in Mississippi. During his early journeyings along his strange new professional path, Doctor Underwood often ran into rough, deep ruts and quagmires. This was true when he pleaded in the legislature for funds with which to drain the mosquito-infested swamps or to educate Mississippi's people about screening, about sanitation, pasteurization, infectious disease control and vaccination. For years he was in the forefront of the fight against polio, venereal diseases, cancer and heart disease. Only last year when he might well have honorably retired from the fray, he hastened to the Jackson city hall to urge fluoridation so that future generations might enjoy improved dental health.

Doctor Underwood's road of public health finally led him to state offices in the historic Old Capitol building. There, for over thirty years, he occupied the position formerly held by the late Dean Walter S. Leathers, one of my distinguished predecessors at the University of Mississippi School of Medicine.

Seneca said, "It is a rough road that leads to the heights of greatness," and Doctor Underwood's road did lead him to the peaks. He walked with ease and dignity among such other great men as the late Dr. Haven Emerson, the epidemiologist; Dr. Thomas Parran, the former Surgeon General, and Dr. Hugh R. Leavell, Professor of Public Health at Harvard. Like the eminent General Gorgas of Panama Canal Zone fame, he led an army of workers in the cause of better health for Mississippians. For his achievements, he justly received high honors. He became president or chairman of numerous state, national and international organizations. He received the Lasker Award twice, in 1945 and in 1953, the only man to be so singularly honored. In 1958, he was named Man of the Year by Mississippi editors in the annual United Press International poll. He was also selected for one of the First Federal Foundation Awards. We rejoice that this final recognition came to him before his death, although the actual presentation was made posthumously on January 30, 1959.

Doctor Underwood was one of the leaders who advocated the establishment of the four-year medical school and I like to believe that seeing the medical center a realized dream was truly gratifying to him. The completion of the Felix J. Underwood Public Health Building culminated his long career and surely he must have experienced a justifiable pleasure at being the only Mississippian for whom a public building has been named during the commemorated individual's lifetime.

A truly dedicated health prophet, architect, and pioneer, and an esteemed Christian gentleman is gone from among us, but Doctor Underwood will continue to live in the minds and hearts of thousands of Americans.

The mossy trail he trod has become a broad and open highway because, to close with Robert Louis Stevenson's words, "When a road is once built, it is a strange thing how it collects traffic, how every year as it goes on, more and more people are found to walk thereon, and others are raised up to repair and perpetuate it and keep it alive."

I asked for all things,
 that I might enjoy life
I was given life,
 that I might enjoy all things . . .
I got nothing that I asked for—
 but everything I had hoped for
Almost despite myself
 God in His own way answered.
I am among all men,
 most richly blessed."

The Advantages of Private Medical Care

MISS LORRAINE FORBES
Laurel, Miss.

I swear by Apollo the physician . . . . to keep . . . the following Oath:

To consider dear to me as my parents him who taught me this art; . . . . to look upon his children as my own brothers, ... I will prescribe regimen for the good of my patients according to my ability and my judgment and never do harm to anyone . . . . In every house where I come I will enter only for the good of my patients . . . . If I keep this oath faithfully, may I enjoy my life and practice my art, respected by all men and in all times; but if I swerve from it or violate it, may the reverse be my lot[1].

Good health is the product of medical progress. The United States has more practicing physicians than any nation in the world, and more of them in proportion to population[2], but a smaller number of physicians today is providing more medical eration ago[3]. Few physicians retire. Of the 22,296 service than the larger number had done a gen- physicians in the age group 65-74 in the United States in April, 1950, 18,110 (84.2 per cent) were in active private practice[4].

American medicine works towards providing medical care of high standards and within easier reach of those who require it. The physicians of this country work as citizens to preserve the freedom which is essential to the fulfillment of their medical obligations to the people[5].

The practitioner has been called the patient's servant. His oath binds him to his patient and to no one else; and so do or should do his professional ethics and presumably his personal sympathy. "To expect any other attitude from him than that of undiluted medical service to those who seek it perverts the meanings of his vocation. To serve the panels of the government against the patient is as unethical for a doctor as it would be immoral for a lawyer to protect the interests opposed to those of his client."[6]

How, therefore, can doctors be doctors having no freedom to practice as they see fit?

Edmund Burke, the English political writer of the eighteenth century and a defender of the rights of the American Colonies in Parliament, said, "People never give up their liberties except under some delusion."[7]

There are many doctors in federal positions who thoroughly enjoy their work; but they are handicapped by some with whom they must work who are only political appointees, individuals who take no interest in their jobs and often slight the work[8]. "When the government tells one group where and how its members are to work, no other group can be safe for long!"[9] Democracy and democratic institutions are on trial. It is an historical fact that men must control themselves and their destinies or be controlled by others. The philosophy of statism is foreign to the American concept of life[10].

Socialized medicine is any tax-supported and governmentally-directed scheme of medical care for a large segment of our population[11].

Socialism should be abhorred by a citizen who was reared in the American tradition that the individual should succeed by his own efforts and his own abilities, that the individual should be required to do for himself that which he can do, and that the only function of government is to do for the people that which they are unable to do for themselves by serious and sincere effort[12].

Socialism has meant and still means the destruction of individual initiative, the curtailment or the abolition of freedom and the domination of all phases of life by the state[13]. "Socialism is competition without prizes, boredom without hope, war without victory, and statistics without end. It takes the heart out of young men. It is not only politically false, but morally destructive."[14] In private medical practice there is no competition, no boredom. The doctor takes pride and interest in each individual case; he puts his heart into his work.

Socialization and death have one thing in common; one cannot be either a little bit socialized or a little bit dead. It is whole hog or nothing[15].

For these reasons, state medicine would be undesirable. It would tend to destroy the time-honored relationship between physician and patient, which is of utmost importance in healing human ills. The patient would no longer be an individual, but would become a routine "case." He would be passed along from one doctor to another as a duty to be performed, as possibly an interesting study, as almost everything but a sick human being in need of sympathetic healing[16]. One can be relatively sure of this sympathetic healing from a private practitioner.

---

*Thirteenth place national award essay in the 1959 American Association of Physicians and Surgeons Contest. Miss Forbes is a senior in the George S. Gardiner High School in Laurel.

Under state medicine doctors are too busy; the patients are no sooner ushered into their offices than they are ushered out. The patient likes to talk more, to tell them more; he likes them to explain more, to listen more[17]. Doctors in private practice have this time and this interest in their patients.

Advancement would come not so much through medical skill as through political skill; the more successful as a doctor, the less successful as a politician, and conversely. The doctor would inevitably become less of a physician, and more of a politician[18].

No nation can merely reap the benefits of freedom; it also must sow seeds of freedom.

It is the same in medicine. If an apathetic medical profession takes its freedom for granted, it will be the beginning of the end. A strong free profession must work for freedom so that it may live in freedom. History tells us that once medicine loses its freedom, other fields of private endeavor are immediately in danger[19].

Sir Stafford Cripps, formerly the Chancellor of the Exchequer, made an interesting statement when his party embarked upon its program of socialization. He said that no country in the world had been able to embrace socialism without invoking compulsory labor laws and that it was the purpose of his party to demonstrate that in civilized and democratic England these would not be necessary[20].

The British have discovered that socialism and liberty are contradictory. One flourishes and the other dies. They cannot coexist[21].

State medicine would be impractical. It has not worked successfully in other countries. The record so far is one of increased costs, with no commensurate benefits received by either the medical profession or the public[22]. But in private medical practice costs are not excessive. When it is considered that the average family does not pay as much for medical care as it spends on its automobiles, or even as much as the tobacco bill, it is unreasonable to consider medical costs on the average being exorbitant[23].

The individual burden of treatment is not such an undue one as is sometimes popularly believed. Most cases do not need exhaustive tests and examinations advocated by the proponents of socialized medicine, but are adequately taken care of by the diagnosis and treatment of the general practitioner[24].

As a rule, medical costs are not beyond the reach of the average person. Where there is dire poverty, it is characteristic of the medical profession that its services are extended freely and gladly. The free clinics which are a part of every hospital, the charity work which every doctor does, represent the medical profession's insistence that no man shall go untreated simply because he lacks ability to pay. Today the medical profession, on the whole, extends adequate treatment to those who need it, at a price fairly within their resources[25].

If there were supportable evidence that government-controlled medicine was good for the people, the doctor's attitude might be quite different. All the proof, however, is to the contrary, just as all the evidence proves that government control of the press is bad for the people[26].

Patrick Henry, one hundred seventy-five years ago, said that "eternal vigilance is the price of liberty." The doctor in America has won his present high place in the hearts and spirits of our people through his study, toil, sacrifice, and service[27].

We have been born as a great people, and we will continue to thrive as a great people only under a system of free enterprise—free for businessmen, free for labor, free for doctors, and free for all people[28].

As long as men are human beings, they will continue to react personally on one another. As long as nations are subject to political manipulation, contact between a nation and the individual in the nation is merely a matter of form[29].

The attempt to socialize medicine is intended only as the first step. Should medicine fall, public utilities would be next. Then would follow the banks, the bar, the press, general industry, and finally labor itself. The doctors of the United States will fight shoulder to shoulder with the other citizens against any attack upon the rights of free men. Doctors are citizens, too; and free citizens they intend to remain[30].

Dr. Dwight Murray was speaking for himself and for the public when he said, "I shall champion the cause of freedom in medical practice and freedom for all my fellow Americans."[31]

---

1. Hippocrates, "Hippocratic Oath," *Compton's Pictured Encyclopedia*, 1953 Edition, Vol. VI, index.
2. Louis H. Bauer, M.D., "Champions of Freedom, *Medicine and the Press*, April 19, 1951, p. 6.
3. Frank G. Dickinson, "How Bad is the Distribution of Physicians?", (Chicago 10: American Medical Association, 1954), p. 3.
4. Bureau of Medical Economic Research. (ed.), "Editorials and Comments" (American Medical Association, May 29, 1954), n.p.
5. John W. Cline, M.D., "Presidential Inaugural

Address," Atlantic City, New Jersey, June 12, 1951, p. 14.
6. Melchior Palyi, *Compulsory Medical Care and the Welfare State*, (Chicago: National Institute of Professional Service, c 1949), p. 102.
7. John W. Cline, M.D., "Medicine's Case Against Socialism," New York City, February 17, 1951, p. 2.
8. Julia E. Johnsen, *Socialization of Medicine: The Reference Shelf*, (New York City: The H. W. Wilson Co., c 1935), Vol. X, p. 297.
9. William L. Hucheson, "Socialized Medicine Is No Bargain," Cleveland, Ohio, December 7, 1950, n. p.
10. Cline, "Presidential Inaugural Address," p. 13.
11. Cline, "Medicine's Case Against Socialism," p. 5.
13. Cline, "Medicine's Case Against Socialism," p. 5.
14. *Ibid.*, p. 6.
15. Hucheson, *op. cit.*, n. p.
16. Anon., "Socialized Medicine," The Debators' Digest, May, 1940, p. 35.
17. Herbert R. Mayes, "What Does the Doctor Do? Much. What Does the Patient Do? More. *The Journal of the American Medical Association.* July 12, 1958, p. 367.
18. Anon, "Socialized Medicine," p. 35.
19. Dwight H. Murray, M.D.. "Freedom in Medical Practice," Seattle, Washington, November 27, 1956, p. 209.
20. Cline, "Medicine's Case Against Socialism," p. 6
21. Ibid, p. 6.
22. Anon., "Socialized Medicine," p. 37.
23. Ibid., p. 34.
24. Ibid., p. 34.
25. Ibid., p. 35-36.
26. Bauer, *op. cit.*, p. 5.
27. Dave Beck, "Government Medicine — Danger Ahead!", Atlantic City, New Jersey, June 11, 1951, n. pp.
28. *Ibid.*, n. p.
29. Johnsen, *op. cit.*, p. 282.
30. Bauer, *op. cit.*, p. 11.
31. Murray, *op. cit.*, p. 211.

Medical School Miscellany

Ole Miss Medical Alumni elected Dr. Frank Massengill of Brookhaven as president of the organization at the annual dinner meeting in May.

Potential medical alumni members number well over a thousand medical certificate holders, said outgoing president Dr. James Grant Thompson of Jackson, as he urged an increase in dues-paying members.

Dues to the medical alumni association are not a set sum, Dr. Thompson pointed out. Instead, each eligible physician is invited to contribute whatever amount he chooses to the *young and* growing organization.

Dr. Robert E. Shands of New Albany was selected as vice-president of the association and W. S. Griffin of University was re-named secretary-treasurer.

Ole Miss Medical Alumni meet each year during the Mississippi State Medical Association Conference. They furnish a University Medical Center headquarters for Southern Medical Association meetings and entertain the University Medical Center graduating classes with a breakfast each year on Commencement morning.

AOA Initiates Five

Dr. Alton Ochsner of New Orleans was the featured speaker for Mississippi Alpha chapter of Alpha Omega Alpha initiation dinner May 8 when five University of Mississippi School of Medicine students were conducted into the honor society.

The initiates included two seniors, Kelly Segars of Belmont and Robert Ford of Jackson, and three juniors, Charles Mitchell of Moss Point, Austin Moody of Pachuta and Robert Roper of Columbia.

Another member of the 1959 senior class, William Bowlus of Greenwood, received the second annual Student Scientific Award. The award carries with it a $100 prize and is given for the student research paper judged most outstanding.

Dr. J. Harvey Johnston of Jackson presided at the dinner in the King Edward Hotel and Dr. D. S. Pankratz, dean of the school, presented keys and certificates to the initiates.

Nurse School Accredited

Formal accreditation came to the University of Mississippi School of Nursing in April, according to Dean Christine Oglevee.

The school, then a department in the School of Medicine, moved from the Oxford to the Medical Center campus in July, 1956. At that time it was accorded provisional accreditation.

Full accreditation for its baccalaureate and general nursing programs is expected to stimulate increased enrollment, an anticipation which seems justified by the 28 sophomores who are to begin work at the Center in June. This is the largest class ever enrolled, according to school authorities.

Bids are to be opened on a student nurse dormitory in the early summer, Dr. D. S. Pankratz, director of the Medical Center, reveals. The dormitory will be built on the Medical Center campus, near the site of the old Highway Patrol building.

University officials believe that the combined appeal of a fully accredited school and modern, attractive housing will encourage many more Mississippi girls to enroll in the nursing school with a resultant benefit to the nursing personnel picture in the entire state.

INTERPRETING MEDICAL LITERATURE

STAFF OF REVIEW

JOSEPH P. MELVIN, Jr., M.D.	Cardiology
Harvey F. Garrison, Jr., M.D.	Pediatrics
JAMES D. HARDY, M.D., and STAFF, Department of Surgery, University Medical Center	Surgery

CARDIOLOGY

Angina Pectoris. Observations of the Classic Form of Angina Pectoris, by Myron Prinzmetal. M. D., et al, Cedars of Lebanon Hospital, Los Angeles, California, Department of Medicine, University of California, School of Medicine.

Both from clinical and surgical evaluation in the treatment of arteriosclerotic heart disease, there has been possible the recording of direct epicardial electrocardiograms with classic severe angina pectoris. These direct recordings indicate numerous islands of ST segment depressions widely scattered all over the epicardial surfaces of both ventricles, these islands being indistinguishable by virtue of pallor or cyanosis from the areas with normal ST segments. The occurrence of ST segment depression in standard leads in classic angina is explained by the diffuse distribution of these islands of ST segment depressions, and this also explains the absence of reciprocal ST segment elevation in other standard leads in classic angina. However, there is one type of angina pectoris in which reciprocal ST elevations do occur and this is considered to be due to hypertonus or spasm in a major or minor branch of one of the coronary arteries supplying one localized area and not involving multiple islands of epicardial tissues. When seen under direct vision, this area with ST segment elevation would be distinctly cyanotic and could be produced in dogs by ligation of a large branch of the anterior descending coronary artery.

Prinzmetal has divided this variant form of angina pectoris from the classic form in the following manner: The classic form of angina is brought on by increased cardiac work whereas the variant form may not be. Emotional attacks usually provoke classic angina whereas it may have very little effect in provoking the variant form which is more severe and of longer duration, often waxing and waning in cyclic fashion, in contradistinction to the classic form of angina pectoris in which the pain is usually less severe, of shorter duration and not cyclical in nature. Frequently in the variant form of angina the pain occurs about the same time of day, a distinct difference from the classic form, and the pain is not particularly relieved by rest whereas the relief of classic angina by rest is typical. Usually anginal pain in the variant form disappears immediately and dramatically after infarction because of the removal of this so-called localized irritable area whereas in classic angina, infarction has no consistent effect on angina because it involves only a portion of the multiple islands of ischemia. Arrythmias are often present in the variant form and are uncommon in the classic form. The electrocardiographic differences have been outlined above.

Comment: We all have seen the so-called variant form of angina, frequently appearing at night for the first time and frequently recurring at about the same time of day. It seems to bear no relationship to exertion, emotion, large meals or chilling, and it is intermediate in degree, as regards pain, between classic angina and true myocardial infarction. The very definite difference between the variant form and the classic form in my opinion is that this variant form is almost predictable in its relationship with immediately developing myocardial infarction. It is very prognostic, in other words, in contradistinction to classic angina.

Inguinal Hernias *Annals of Surgery* 149, 1:100-6

Accepted practice is avoidance of appendectomy at the time of herniorrhaphy because of the danger of wound infection and subsequent recurrence of hernia. Obviously the operation is feasible only in right inguinal hernia repair.

The operation was performed 73 times during the repair of over 251 right inguinal hernias. It was omitted if the appendix was difficult to expose or seriously prolonged the operating time or if the patient was a more than usual operative risk.

There appeared to be no further increase in complication whether the appendix was removed or not in the repair of the inguinal hernia. There were no recurrences in the immediate postoperative period nor as a result of an infection. Wound infection did not appear to be increased, a fact which the authors attribute to postoperative antibiotic therapy.

THE MISSISSIPPI DOCTOR

The journal with a vision which encourages a plan of delivering modern medicine to the masses at less cost to the individual and more profit to the practitioner. It champions the community hospital, the hub around which this service must be built.

Entered as second-class matter, January 19, 1926, at the post office at Booneville, Miss., under the Act of March 3, 1870. Annual subscription, $3.00.

W. H. ANDERSON, M.D. .... Editor-in-Chief
MILDRED P. ANDERSON .... Assistant Editor

MID-SOUTH POSTGRADUATE MEDICAL ASSEMBLY

W. G. Stephenson, M.D. Chattanooga, Tenn.	President
Omar Simmons, M.D. Newton, Miss.	President-elect
David E. Stewart, M.D. Brownsville, Tenn.	Vice-President
L. B. Otken, M.D. Greenwood, Miss.	Vice-President
C. G. Swingle, M.D. Marked Tree, Ark.	Vice-President
Thurman Crawford, M.D. Memphis, Tenn.	Secretary-Treasurer

Mid-South Associate Editors

H. King Wade, M.D.	Hot Springs, Ark.
Frank M. Acree, M.D.	Greenville, Miss.
R. L. Sanders, M.D.	Memphis, Tenn.

MISSISSIPPI STATE MEDICAL ASSOCIATION

Stanley A. Hill, M.D. President	Corinth
G. Swink Hicks, M.D. President-elect	Natchez
Wm. E. Lotterhos, M.D. Secretary	Jackson
Rowland B. Kennedy Executive Secretary	Jackson
Wm. M. Dabney, M.D.	Crystal Springs
Louis F. Rittelmeyer, M.D. State Associate Editors	Jackson

The Publication Committee is not responsible for the authenticity of opinion or statements made by authors or in communications submitted to this journal for publication. The author or communicant shall be held entirely responsible.

Address all material for publication to W. H. Anderson, M.D., 30 West Church Street, Booneville, Mississippi.

ANNUAL STATE MEETING

Dr. Hill Succeeds to Presidency

Dr. Stanley A. Hill, Corinth, was inaugurated president, and Dr. G. Swink Hicks, Natchez, was named president-elect. Dr. Hill is the first president in MSMA's 103-year history to follow his father in office, Dr. J. R. Hill having served in 1935.

Dr. Hicks New President-Elect

Dr. Swink Hicks, new president-elect of the State Association, is young, personable, able and active, and will make a mighty good president. He comes from a good city, one whose place in Mississippi history is distinctive and one that is also progressive. It is said that in 1860 when the nation had twelve millionaires that Natchez claimed eight of them. The city is soon to have a new hospital and in the surrounding county are several new oil wells. Two past-presidents—Dr. Jake Ullman and Dr. John W. D. Dicks, now of New York, are from Natchez. The Doctors Finney hailed from there also, later so well known in Baltimore and across the nation. Our congratulations and support to Dr. Hicks.

Relinquishes Gavel

Dr. Guy Vise of Meridian made an untiring and active president of the State Medical Association. Able in the practice of medicine, he is also outstanding in its organization, and has been most liberal in time contributed to the affairs of the Association.

Dr. Orr Guest Speaker

Dr. Louis M. Orr, president of the American Medical Association, addressed the House of Delagates, members, and guests, submitting a program designed to break the chains of misconception about the nation's aging problem. He urged that medicine's program will meet the health needs of all groups, adding: "Any government plan would be compulsory, financially back-breaking, subject to political whims and political pressure, and hopelessly snarled in red tape."

Host to Past Presidents

Dr. Howard A. Nelson, recent president of the State Association, was host to the past-presidents for a fine breakfast at the Buena Vista Hotel.

Dean Pankratz Orator

Dr. Felix J. Underwood was the subject of the memorial address this year and Dean Pankratz did a fine job of the oration—an able and versatile man paying tribute to the memory of one of our state's outstanding sons.

Dr. Parker Host *in absentio*

Drs. E. C. Parker, Harvey Garrison, Sr., V. B. Philpot, and Lampton Crawford were among the very faithful who missed the meeting this year, all because of illness.

Auxiliary Heads

Mrs. James T. Thompson, Moss Point, was inducted Auxiliary president, and Mrs. Lee R. Reid, Jackson, is the new president-elect.

Next Year

The State Association will meet in Jackson next year.

REVISIONS SOUGHT IN HOSPITAL CHARITY

The Mississippi Hospital Governing Boards Association will ask the 1960 legislature to revise the state's hospital care program for charity patients.

The proposal includes a provision whereby the state would pay to hospitals the full cost of care rendered.

W. K. Anderson of Clarksdale, association president, said Mississippi hospitals would lose $1,700,000 this year because current state allocations for charity patient care were too small.

Another leader of the hospital trustees group, C. C. Whittington of Greenwood, called the present program "inadequate and antiquated."

MISSISSIPPI PLACES IN AAPS ESSAY CONTEST

The tenth, eleventh and twelfth grades of all Mississippi's high schools were invited to write an essay on "The Advantages of Private Medical Care" or "The Advantages of the American Free Enterprise System," in the Association of American Physicians and Surgeons Essay Contest. Students in these last high school grades of other states across the nation competed, as did Mississippi high school students. A Mississippi girl from Laurel, Miss Lorraine Forbes, wrote an essay on "The Advantages of Private Medical Care" and won thirteenth place in the national awards after placing first in her own state.

This is the thirteenth year the Association of American Physicians and Surgeons has sponsored such a contest among high school students. Dr. R. J. Moorhead of Yazoo City is incoming president of the organization.

Just as a patient can develop a tolerance for drugs and medications, a comparable kind of tolerance can be developed in the realm of ideas. We have heard cries against Communism and socialized medicine for so long that many of us have lost any real sense of urgency in dealing with the problem. This may be tragic in our coming generation, most of whom are completely unaware of these trends. We commend Dr. Moorhead and the AAPS. You may read Miss Forbes' essay with more persuasion yourself.

PROBLEM GROWS WITH US

Some think that the indigent patient's hospital cost should be paid in full, others think that the hospital is due to absorb some of the cost, especially the Hill-Burton hospitals whose construction and equipment have been allocated from public funds. The per capita appropriation of funds is to permit each county to get a proportionate share. But this system needs overhauling and improving. There was a time when our state had five of the eight state-owned and operated charity hospitals. When these charity hospitals were established there were reasons and they served well, especially for acute cases of surgery that could reach them. We had few trained surgeons at that time. Almost every hospital now has a very good surgeon. It was never very practicable for acute surgical cases to be carried two hundred miles to a hospital. The trend for two decades has been to bring hospital service to the people, to rural communities. From the standpoint of good business and social economy it is much better to take care of the indigent patient in the local hospital. It might be that the hospital, nurse, druggist, and even the doctor should be given consideration in a new plan to defray the indigent patient's care during illness.

Anyway, there is much room for study in taking care of the indigent patient as well as the aged. We have made progress; we must make more. Let us investigate, let us study the entire problem.

OFFENSIVE

What *is* this thing we've inherited which we'll defend with our lives? If it's bricks and mortar, factories, cars, houses, gadgets, and places of pleasure—if that's all we're defending, we'll lose them, and all else. What *are* we defending against the Communists? We are defending the freedom and the dignity of the individual, the right to be masters of ourselves and of our government; and to be servants only of our God. Defend? We must not only defend. We must get on the offensive, and take these ideas, these freedoms, and these blessings to the world. "Containment" of Communism is only a beginning, not an end.

BELIEF

Pasteur was really the father of curative and preventive medicine. He had the master mind for research in different fields of science. The world owes him such a debt. Our late Dr. W. A. Evans worked with him in his laboratory in France.

"Pasteur believed that science and religion walk hand in hand. He felt that faith in God is the supreme thing that science is here to help that faith along."

News and Comment

NEW ORLEANS MEDICAL ASSEMBLY ELECTS

The twenty-third annual meeting of the New Orleans Graduate Medical Assembly will be held March 7-10, 1960, headquarters at the Roosevelt Hotel, New Orleans.

The following officers and members of the Executive Committee have been elected for this year:

Dr. Ambrose H. Storck, president; Dr. M. E. St. Martin, president-elect; Dr. Barrett Kennedy, first vice-president; Dr. Ralph M. Hartwell, second vice-president; Dr. Warren H. Hebert, third vice-president; Dr. Mannie D. Paine, Jr., secretary; Dr. Boni J. DeLaureal, treasurer; Dr. H. Reichard Kahle, director of program; Wr. W. E. Kittredge, assistant director of program; Dr. Joseph W. Wells, assistant director of program.

Members of the Executive Committee include Doctors J. O. Weilbaecher, Jr. (retiring president), J. Theo Brierre, Max M. Hattaway, Lee D. McLean, and John G. Menville.

FIFTY-YEAR CLUB

A luncheon meeting of the Fifty-Year Club was held at 12:30 p.m., Tuesday, May 12, 1959, at the Buena Vista Hotel in Biloxi, with Dr. E. C. Parker of Gulfport as host. (Doctor Parker was unable to be present due to illness.)

The following members were present: Dr. E. K. Guinn, Dr. J. I. Woodward, Picayune, Dr. B. Z. Welch, Biloxi, Dr. J. R. Hill, Corinth, Dr. C. W. Patterson, Rosedale, and Dr. W. P. Gray, Waynesboro.

Others attending were: Dr. W. H. Anderson, sponsor, Booneville, Dr. George Lull (honorary member), Chicago, Dr. Guy Caldwell, New Orleans, Dr. W. H. Watson, Brandon, Dr. A. L. Gray, state health officer, Jackson, Dr. C. C. Bass, New Orleans, Dr. D. S. Pankratz, dean, University School of Medicine, Jackson, Dr. Guy T. Vise, president, State Medical Association, Meridian, Dr. Stanley A. Hill, president-elect, State Medical Association, Corinth, and Miss Cleta Brinson, Jackson.

In the absence of the president, Dr. B. L. Crawford, Tylertown, who was unable to attend on account of illness, Dr. W. H. Anderson presided. The invocation was given by Dr. A. L. Gray.

Officers elected were: Dr. B. L. Crawford, Tylertown, president (re-elected), Dr. C. W. Patterson, Rosedale, vice-president, and Dr. A. L. Gray, Jackson, recording secretary.

The following report was given by Dr. A. L. Gray: "A total of 153 fifty-year certificates have been issued to date, 65 members are now living, 9 certificates have been awarded since the last meeting, and 4 members have died since the last meeting. The recently deceased members include: Dr. William Robert Hand, Philadelphia, Dr. William Henry Frizell, Brookhaven, Dr. Harbert Claude Owen, Holly Bluff, and Dr. Felix Joel Underwood, Jackson. Certificates awarded since the last meeting went to: Dr. Charles Wheeless Patterson, Rosedale, Dr. William Fletcher Stroud, Mount Olive, Dr. Louis Calvin Rouse, Poplarville, Dr. Thomas Franklin Clay, Tutwiler, Dr. Byron Beethoven Harper, Itta Bena, Dr. George Torrey Warren, Brookhaven, Dr. Benjamin Coleman Tubb, Smithville, Dr. Elias Kilgore Guinn, Okolona, and Dr. Perry Reaves Wasson, Lyon (in process)."

Doctor Gray then submitted a resolution in memory of the four members who had passed away since the last meeting.

The guest speaker for the luncheon, Dr. C. C. Bass, was made an honorary member of the Club. Doctor Anderson in introducing Doctor Bass, referred to him as the Pasteur of the South.

The Club was invited by Doctor Pankratz to be his guests at the Fifty-Year luncheon to be held at the University Medical Center in Jackson in 1960.

DR. HARDY ALCORN GUEST

The Alcorn County Medical Society at its meeting in May had Dr. James Hardy, head of the Department of Surgery at the University of Mississippi, to give the scientific presentation. He is rapidly becoming known across the nation. His subject, "Some Surgical Conditions in Children," kept the close attention of every doctor.

Dr. Stanley Hill, now president of the State Medical Association, and his father, a past-president, were active hosts. The September meeting of the Northeast Society will go to Corinth as a friendly gesture to our president.

SOUTHERN MEDICAL ASSOCIATION
November 16 - 19, 1959
ATLANTA, GEORGIA

Fifty-Year Club Biographica

ELIAS KILGORE GUINN

Elias Kilgore Guinn, son of J. L. and Frances Ulmer Guinn, was born August 15, 1880, at Van Vleet, Mississippi.

He received his preliminary education in Houlka and Maben and took his pre-medical course at the University of Mississippi, graduating from Vanderbilt University, May 9, 1909. Doctor Guinn married Miss Mary Conner in Okolona on April 16, 1912, and they have three daughters.

After graduation, Doctor Guinn began the practice of medicine at McCondy, Mississippi, where he practiced until 1940 when he moved to Okolona where he still practices.

Doctor Guinn is a member of the Eastern Star, Masonic Lodge, and is a Shriner. He is also a member of the Lions Club. He holds membership in the American Medical Association, the Mississippi State Medical Association and the Northeast Medical Society. Also, he is a member of the Academy of General Practice.

Dr. Guinn has been a steward in the Methodist church since he was 18 years of age and has taught a class in Sunday school for the past fifty years. Throughout his life, Dr. Guinn has been interested in the upbuilding of his community.

The Fifty-Year Club recently honored Doctor Guinn with lifetime membership in the Club.

For many years, Doctor Guinn has served his fellowman faithfully and well and has brought honor to himself and to the profession in the practice of medicine in Mississippi.

GEORGE TORREY WARREN

George Torrey Warren, son of Daniel C. and Mary Torrey Warren, was born at Union Church, Mississippi, June 7, 1885.

The Fifty-Year Club has honored Doctor Warren with lifetime membership in the club.

He received his de- from Tulane University in 1909 and returned on June 1 for graduation exercises again at the end of fifty years.

Dr. Warren has served his fellow man faithfully and well over a period of many years and has always upheld the highest traditions of medical practice.

He holds membership in the Tri-County Medical Society, the State Medical Association, the Southern Medical Association, and the American Medical Association. At one time, he served as president of the Lincoln County Medical Society.

Dr. Warren was a member of Kappa Sigma literary fraternity at Millsaps College and Alpha Kappa medical fraternity at Tulane.

BYRON BEETHOVEN HARPER

Byron Beethoven Harper was born October 25, 1884, at Star, Mississippi.

He attended public school in Rankin County and received his medical degree from Vanderbilt University in May, 1908. He did postgraduate study at Tulane and Vanderbilt universities.

Doctor Harper located at Itta Bena where he continues the practice of medicine at the present time. He served as mayor of Itta Bena for two terms. He is a past-president of the Rotary Club. Doctor Harper is a Mason and a Shriner. He holds membership in the Delta Medical Society and the Southern Medical Association and American Medical Association.

The Fifty-Year Club recently honored Doctor Harper with lifetime membership in the Club.

For many years, Doctor Harper has served his fellowman faithfully and well and has brought honor to himself and to the profession.

Resolution

Whereas, Almighty God in His infinite wisdom saw fit to take from our midst Doctor Samuel Logan Stephenson, Sr., on April 6, 1959, and

Whereas, Dr. Stephenson practiced in our midst in Corinth, Mississippi, from 1919 to 1941 as one of our most capable and beloved general practitioners; was born in Hopkinsville, Kentucky, on September 17, 1880, the son of Lindsay Vardiman and Rhoda Etta Lee Stephenson, married Addie Dunlap Harris on December 20, 1911, and was blessed with three children, Dr. Samuel Logan Stephenson, Jr., Jane Antoinette Stephenson Hix, and Lindsay Harrison Stephenson; attended public school in Union City, Tennessee, Carr Institute in Fulton, Kentucky, and graduated from the University of Tennessee Medical College in 1909; interned at Lying-In Hospital in New York City, and having also attended the College of Dentistry at The University of Louisville at Louisville, Kentucky, graduating with a D.D.S. Degree in 1903; began practice in Marks, Mississippi, in 1909, and moved to Corinth in 1919 where he practiced his profession until forced to retire on account of poor health in 1941; and

Whereas, he was a member of the Alcorn County Medical Society, the Northeast Mississippi Thirteen County Medical Society, the Mississippi State Medical Society, the Southern Medical Association, the American Medical Association, an active member of the Methodist Church and a Mason; and

Whereas, Dr. Stephenson had a most unique military record, having been a member of the First Arkansas Volunteers during the Spanish-American War in 1898, having fought in the Boer War from 1901-1902 as a member of the First Imperial Lighthorse Regiment under Lord Kitchener, and was awarded the Queen Victoria Medal and a medal for Expert Horsemanship in that engagement; and having represented the Imperial Lighthorse Regiment at the Coronation of Edward VII at the conclusion of the Boer War, and having served as a captain in the U. S. Medical Corps during World War I, his military services had carried him to all parts of the world; and

Whereas, Dr. Stephenson in the practice of his profession among us and his services as a public-spirited citizen, a beloved father and husband, and friend of the sick and needy, is greatly missed; therefore

Be It Resolved, That a copy of these resolutions be spread upon the minutes of the Alcorn County Medical Society, that another copy be sent to *The Mississippi Doctor*, and another be sent to the family of the bereaved.

Committee:
Dr. D. W. Hamrick
Dr. C. W. Norwood
Dr. M. H. McRae

FOR SALE: EENT chair, in good condition.
R. M. Akin, M.D., Hazlehurst, Miss.

I asked for health,
that I might do greater things
I was given infirmity,
that I might do better things . . .

DEATHS

DR. CHALMERS A. KIRK

Dr. Chalmers Anderson Kirk, 79, of Fearn Springs, died April 29 in an ambulance in Holly Springs en route to a Memphis hospital. He had been ill two weeks.

He was a native of Fearn Springs in Winston County, was a graduate of the University of Tennessee, and had practiced medicine for 56 years.

For a short time he was in Iuka but spent most of his life in Winston County. He had built a 15-bed hospital in the Fearn Springs community and practiced regularly until his illness.

Survivors include his wife; four sons, Osler Kirk, of Sebring, Fla., C. A. Kirk, Jr., of Louisville, Clement T. Kirk, of Miami, and Lt. Col. Warren M. Kirk, an Air Force physician, in Washington; two daughters, Mrs. Dr. Esther M. Kirk, of Beverly Hills, Calif., and Mrs. E. D. Dirks, of Los Angeles.

DR. PLUMMER B. WILLIAMSON

Dr. Plummer B. Williamson, 84, died at University Hospital in Jackson, May 19.

Dr. Williamson, a 1901 graduate of the University of Nashville Medical College, now a part of the University of Tennessee, was honored by the University of Tennessee in 1952 for his contribution to the communities in which he had practiced.

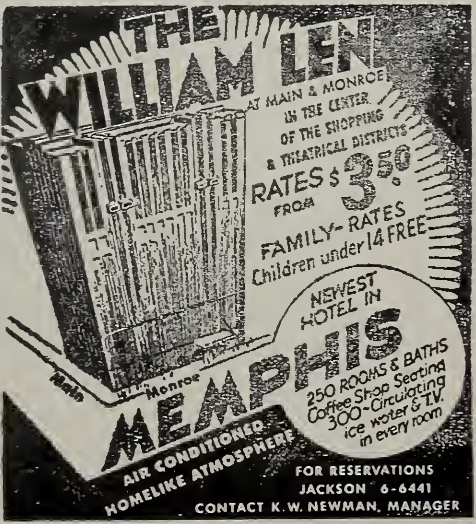
Born in Copiah County, Dr. Williamson practiced in Copiah and Simpson counties after his graduation from medical school. During World War I he served as county health officer of Pearl River County, after which he resumed private practice. He later served in the psychiatric division of the Mississippi State Hospital at Whitfield.

Prior to entering medical school, he graduated from Mississippi College.

He was a member of the Central Medical Society of Mississippi, and the Mississippi Medical Association.

He leaves his wife; one daughter, Mrs. S. M. Crain, Clinton; one son, P. B. Williamson, Jr., Waynesboro; one brother, Carl Williamson, Biloxi; two sisters, Mrs. Laura Berry, Pinola, and Mrs. C. F. Culvahouse, Memphis; and one granddaughter.

I asked for riches,
that I might be happy
I was given poverty,
that I might be wise . . .



MISSISSIPPI General Discount Corporation

invites

. . . the physicians and dentists of Mississippi to avail themselves of the benefits of its professional credit - loan plan.

Designed with the doctor and patient in mind it provides a dignified credit plan to ease the burden of major medical and dental expenses — assuring the doctor prompt payment for his professional services and providing a budget payment plan for the patient.

Confidential details of the plan are available from the manager of any of our branch offices, operating as:

SOUTHERN LOAN CORPORATION

MART - 51
JACKSON

DELTA MART
JACKSON

130 S. FARISH STREET
JACKSON

MERIDIAN
2209 8TH ST.

ABERDEEN
BIG STAR BLDG.

AMORY
NORTH MAIN ST.

Other offices will be opened throughout Mississippi in 1959. This is a Mississippi enterprise — owned by Mississippians — operated by Mississippians.

PARENT COMPANY

Mississippi General Discount Corporation

130 SOUTH FARISH STREET, JACKSON, MISS.
PHONE — FL 2-1602 or FL 3-5111

CIRCULATES AFTER

TY OF MARY
LIBRARY
OF MEDICINE

The MISSISSIPPI Doctor

M.S.M.A.

THE MISSISSIPPI DOCTOR, JULY, 1959 NO. 2

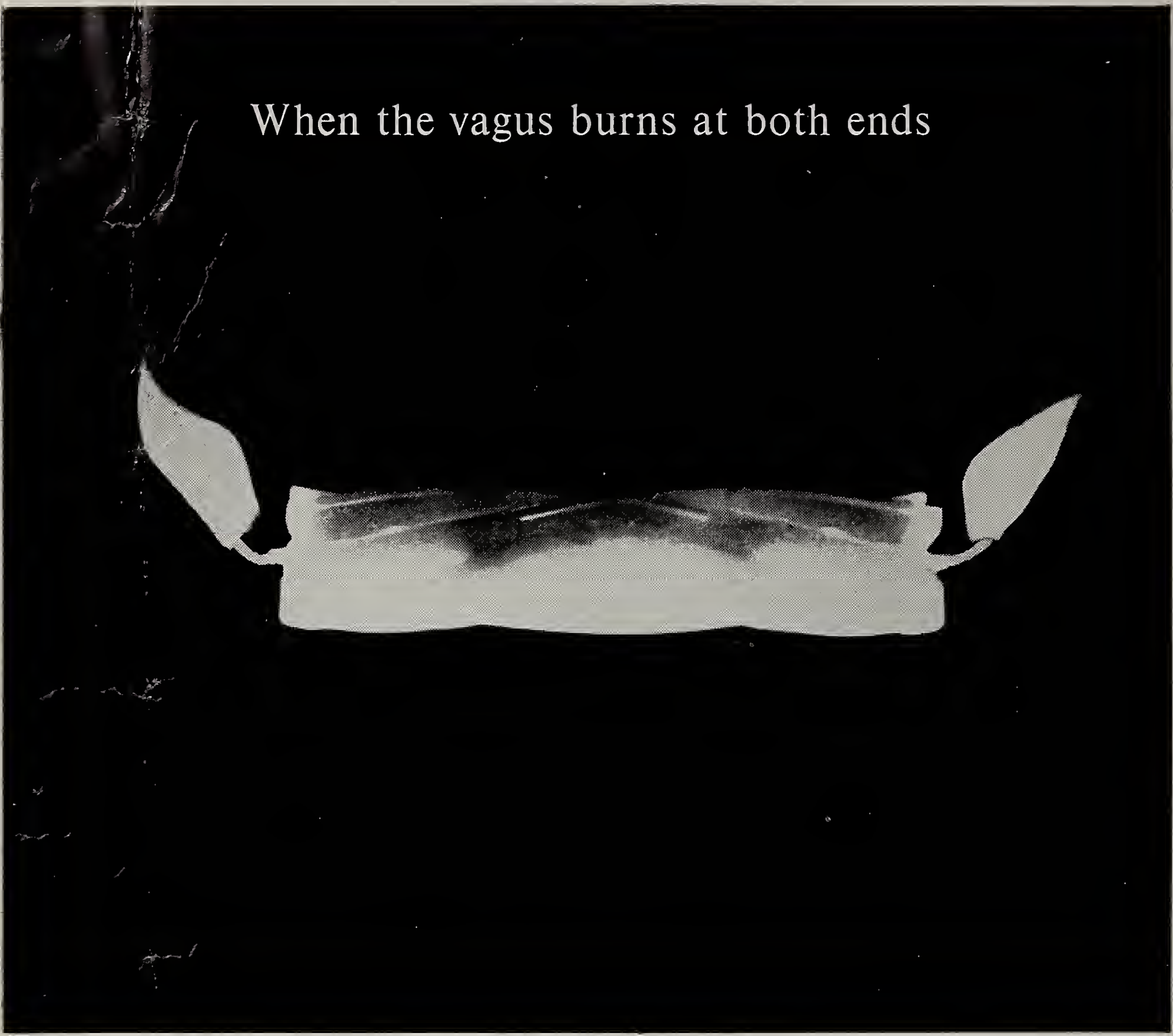
Library, Univ. of Md. Sch. of
Med., S. E. Corner of Lambard &
and Green Sts., Baltimore, Md.

But give me, Lord, eyes to behold the truth,
A seeing sense that knows the eternal right;
A heart with pity filled, and gentlest truth;
A manly faith that makes all darkness light;
Give me the power to labor for mankind.

Theodore Parker

In This Issue

SURGERY FOR DEAFNESS
STAPES, FENESTRATION AND TYMPANOPLASTY
J. Brown Farrior, M. D.
COBALT-60 TELETHERAPY IN THE TREATMENT OF MALIGNANCY
Bernard T. Hickman, M. D.
SOME REMARKS RELATIVE TO DENTAL HEALTH
Charles C. Bass, M. D.
CORTICOIDS — PRECURSORS OF TUBERCULOSIS
Watts R. Webb, M. D., and C. A. Watkins, M. D.
PROSTATIC AND TESTICULAR MALIGNANCIES
Julian Wiener, M. D.
POLIOMYELITIS IN MISSISSIPPI
Durward Blakey, M. D.



Pro-Banthīne® with Dartal® moderates both mood and gastrointestinal spasm

The slow simmer of anxiety frequently causes kindred gastrointestinal overactivity. The spasticity and the accompanying distress of excess acid lead to loss of efficiency. Patients subject to such psychoenteric upsets require therapy to calm both ends of the vagus.

Pro-Banthīne with Dartal contains two agents required for such dual therapy: Pro-Banthīne to control and curtail the flare-ups of spasm, excess acidity and excess motility, and Dartal to smother simmering anxiety and tension.

Pro-Banthīne with Dartal contains 15 mg. of Pro-Banthīne (brand of propantheline bromide) and 5 mg. of Dartal (brand of thiopropazate dihydrochloride) in each tablet.

Dosage: One tablet three times a day.

G. D. Searle & Co., Chicago 80, Illinois.
Research in the Service of Medicine.

Surgery for Deafness

Stapes, Fenestration and Tympanoplasty *

J. BROWN FARRIOR, M.D.
Tampa, Florida

In the past few years there have been more advances in surgery for deafness than have occurred since the beginning of time. These advances began with the fenestration operation for otosclerosis[1], followed by the indirect mobilization of the total stapes[2]. Now, with microscopic study of the stapes, we have many varieties of stapes operation designed to work around rather than through the otosclerosis and thereby quantitatively and qualitatively to increase the lasting restoration of hearing [3,4,5,6]. Concomitantly the five types of tympanoplasties have been developed to close perforations in the ear drum and to reconstruct a hearing ear[7,8] in chronic otitis. These are changing times. The purpose of this presentation is to acquaint you with what your otologist can do for your hard-of-hearing patient, whether the cause is otosclerosis or a perforated ear drum.

CONDUCTIVE DEAFNESS

The modern operations are designed to improve the hearing in conductive deafness where the inner ear is good but the sound does not reach the organ of Corti. To determine the opportunity for improvement, pre-operatively the inner ear is tested by the bone conduction. In your office, you can test the bone conduction by placing a tuning fork on the mastoid. Characteristically the patient hears better by bone conduction than by air conduction. The same test may be simulated by placing a loud watch on the mastoid. Your otologist will use the bone conduction oscillator of the calibrated audiometer. With this method, the inner ear function is carefully measured and the possible good results of surgery may be accurately predicted.

Characteristically patients with conductive deafness can understand clearly if the sound is loud enough to reach the organ of Corti. In your office, if you will talk loudly, directly into the patient's ear, and you can clearly understand, the possibilities are that your patient can be helped through ear surgery. If the loud voice annoys the patient, or remains indistinct, then surgical benefits are doubtful. With the audiometer, the speech discrimination is measured and the possible results of surgery may be more accurately predicted.

THE HISTORY

In otosclerotic deafness, characteristically there is a gradual loss of hearing beginning in adolescence or early adult life. Rarely does the otosclerotic deafness begin in childhood or after the age of fifty.

In perforations of the ear drum, there is usually a childhood history of otorrhea or recurrent otitis media. In perforated ear drums, the best results are obtained when the infection has not destroyed the chain of auditory ossicles; the malleus, incus and stapes, hammer, anvil, and stirrup.

STAPES OPERATIONS

Introduction

The deafness in otosclerosis is caused by small overgrowth of bone which immobilizes the stapes and seals the inner ear. This growth of bone varies greatly in size, character, and location[9]. The growth of bone may be thin and fix only a margin of the footplate of the stapes, or it may be thicker and fix one or both crura (legs) of the stapes, or it may even completely obliterate the oval window niche.

The original indirect total stapes mobilization operation produced lasting results only in the smallest, thinnest otosclerotic lesions. With the indirect techniques, the entire stapes was mobilized by pressure on the incus, (Fig. 1) head or neck of the stapes (Rosen 2). The crura frequently fractured or the growth of otosclerosis refixed the stapes because of crural otosclerosis. Current stapes operations are designed to by-pass the otosclerosis and work through normal stapedial footplate (Farrior 10).

When the anterior crus (leg) of the stapes is cemented in the otosclerotic bone, a section of this leg must be removed to permit the free movement of the posterior half of the footplate of the stapes and the back leg of the stapes. (Fig. 2). The removal of a portion of this anterior crus is called an anterior crurotomy. The anterior crurotomy is one of the best operations on the stapes.

---

*Abstract of presentation on Tympanoplasty and Stapes Operations presented at annual meeting of the Louisiana-Mississippi Ophthalmological and Otolaryngological Society at the Edgewater Gulf Hotel, Edgewater Park, Miss., on May 15-16, 1959.

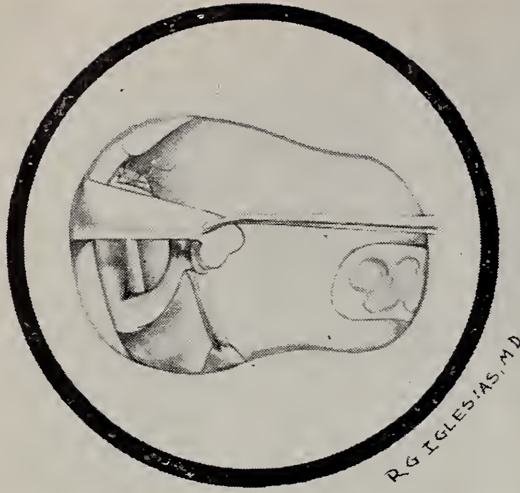


Fig. 1. The original indirect mobilization of the total stapes, with the force directed at the incus, head or neck of the stapes, is now indicated only when the stapes is deeply placed and there is very limited otosclerosis fixing the anterior footplate. The original total stapes mobilization gave a lasting hearing improvement in about a third of cases. The newer techniques, which by-pass the otosclerosis, have more than doubled the good results.

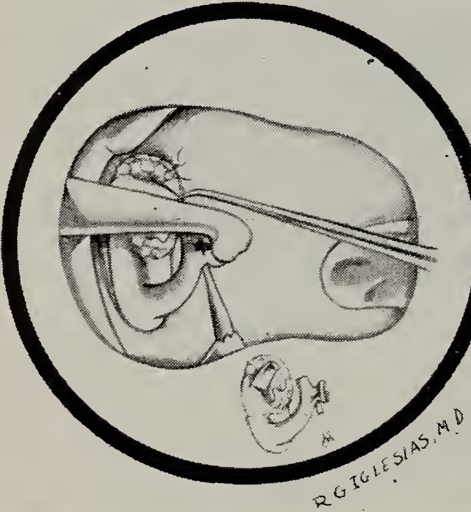
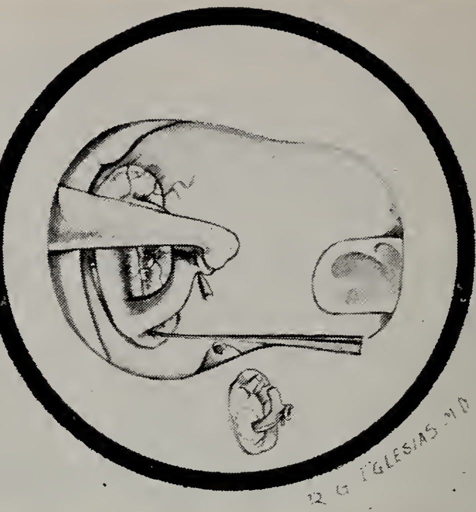


Fig. 2. When the anterior crus (front leg) of the stapes is cemented in the otosclerosis, a section of the anterior crus must be removed. This is called an anterior crurotomy and is accompanied by mobilization of the posterior half of the footplate and the posterior crus (leg). Anterior crurotomy is one of the best operations on the stapes giving the best results quantitatively and qualitatively.

It is the operation of choice in all anterior otosclerotic lesions because it gives the best hearing with the least tendency toward refixation.

When both crura (legs) of the stapes are cemented in the otosclerosis (Fig. 3) special surgical techniques are required to prevent refixation. When the oval window niche is wide, crural repositioning is the procedure of choice; in this procedure the back leg (posterior crus) of the stapes is chiseled out of the otosclerosis and repositioned over the central mobilized impacted area of normal footplate (Farrior 4). A narrow oval window niche, or surgical or pathological destruction of the crura, requires artificial crura made either of polyethylene tubing or fine, stainless steel wire. These special surgical techniques usually give lasting results in that difficult 20 per cent of cases with bi-crural (both legs) otosclerosis.



Fif. 3. When both crura (legs) of the stapes are cemented in the otosclerosis, special techniques are required, depending upon the width of the oval window niche. When the oval window niche is wide, the posterior crus may be chiseled out of the otosclerosis and repositioned over the central area of mobilized normal footplate (see illustrations). When the oval window niche is narrow, the otologist inserts artificial stapedial crura of polyethylene or stainless steel.

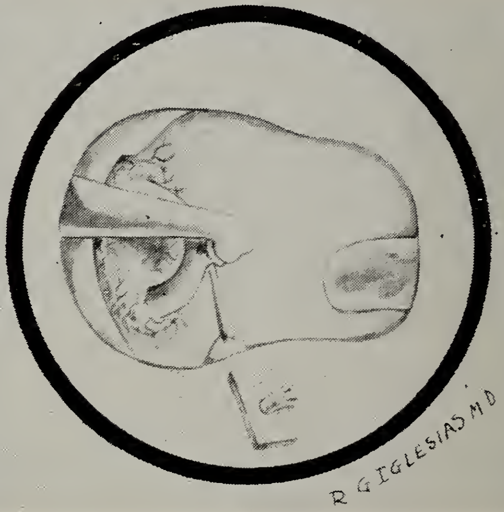


Fig. 4. When the entire stapedial footplate is replaced by thick, vascular otosclerosis, this is a pathological indication for the oval-window window and vein graft, or for the reliable and predictable fenestration operation.

When the entire footplate of the stapes is replaced by otosclerosis, unless the otosclerosis is very thin, there is little chance for a lasting successful restoration of hearing with a total stapes mobilization. Therefore, in this complete footplate otosclerosis, a new window must be made into the inner ear (Fig. 4). This new window may be made by removing the footplate of the stapes and covering the oval window with a vein graft (Shea 5). This is usually accompanied by the insertion of an artificial crus of polyethylene tubing. When there is mountainous otosclerosis, completely obliterating the oval window niche, the new window is made in the horizontal semi-circular canal (the classical, reliable and predictable fenestration operation).

FENESTRATION OPERATION

The fenestration operation remains the master surgical procedure for the restoration of hearing in conductive deafness. The fenestration operation is indicated in an inoperable stapes with a functioning round window and good inner ear function. The fenestration operation may be performed when stapes surgery has failed. The fenestration operation is indicated when the stapes is inoperable from extensive otosclerosis, previous stapes surgery, or the fibrosis of previous infection. The fenestration operation is indicated whether this conductive deafness is the result of otosclerosis or chronic ear infection. Performed with microscopic perfection, the fenestration operation is the most reliable and predictable operation on the ear for the permanent restoration of a worthwhile hearing improvement.

MICROSCOPIC DIAGNOSIS

Today, with microscopically accurate diagnosis of the surgical pathology of the stapes, the otologist can plan a variable surgical attack on the stapes, oval window, or horizontal canal, which has an ever-increasing possibility of giving a lasting restoration of hearing.

TYMPANOPLASTIES

Introduction

The hole in the ear drum remained open from the time of the caveman until the 1950's. Only in the past few years have we mastered the microscopically accurate surgical technique which permits the reconstruction of a new ear drum with the patient's own skin. These new ear drums seal the middle ear from outside infection and can frequently restore hearing to the near-normal level. Through plastic surgery of the ear drum, these patients can be permitted to swim without the fear of starting a dangerous mastoid infection.

While the American surgeons were busy restoring hearing through the fenestration operation and the variable stapes operations, the European surgeons[7],[8] developed and standardized the types of tympanoplasties for the closure of the perforation in the ear drum in chronic ear infections. This plastic surgery was inspired undoubtedly by the great numbers of chronic ear infections which resulted from inadequate therapy in Europe during the war years.

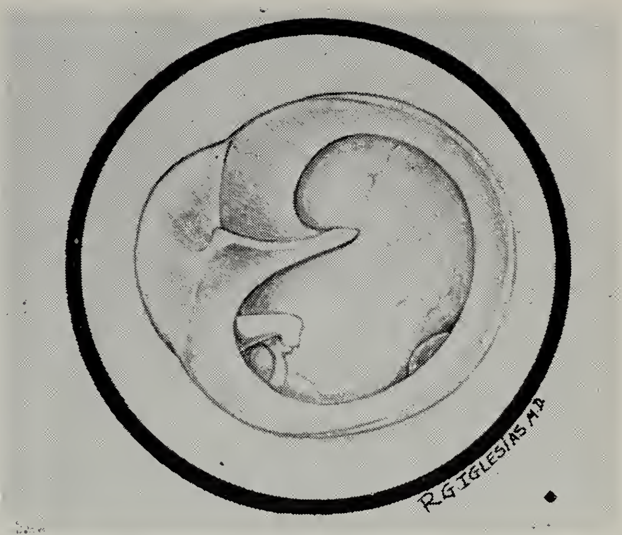


Fig. 5. The hole in the ear drum remained open from the time of the cavemen until the 1950's. With microscopically accurate plastic technique, a new ear drum can now be reconstructed with a free skin graft. The type of tympanoplasty utilized is dependent upon the remaining portion of the auditory ossicles—the malleus, incus and stapes—hammer, anvil and stirrup.

The purpose of all tympanoplasties is, first, to reconstruct a new ear drum with the patient's own skin and, secondly, to improve the transmission of sound to the inner ear by utilizing all or any part of the remaining chain of auditory ossicles and protecting the round window. Depending upon the amount of air-containing space in the middle ear and the part of the ossicular chain utilized, tympanoplasties are divided into a basic classification of five types: myringoplasty, tympano-incudo-plasty, tympano-stapedio-plasty, hypo-tympanoplasty, and the fenestration.

For the remainder of your lifetime, you will hear these operations referred to as Type I, II, III, IV, V; therefore, you will be interested in a brief definition of the basic types of tympanoplasty.

TYPE I—MYRINGOPLASTY: The myringoplasty is the closure of the perforation in the ear drum utilizing the complete, freely movable, ossicular chain (malleus, incus and stapes). The myringoplasty, Type I, is the most gratifying of all the tympanoplastic procedures for most frequently the hearing will be returned to the normal or near-normal level and the patient has a new, near-normal ear drum.

TYPE II—TYMPANO-INCUDO-PLASTY:

When the joint between the incus and malleus has been destroyed by the chronic disease process, the new ear drum (skin graft) omits the use of the malleus and is attached directly to the incus. As the incus is frequently destroyed by the disease, the surgeon rarely finds an opportunity to utilize the tympano-incudo-plasty, but when the proper pathological circumstances are found, the tympanoplasty, Type II, tympano-incudo-plasty, can restore the hearing to the near-normal level.

TYPE III—TYMPANO-STAPEDIO-PLASTY: When the malleus and incus have been destroyed by the disease process, the new ear drum (skin graft) is brought into contact with the remaining stapes. The tympano-stapedio-plasty, Tympanoplasty Type III, will restore the hearing to the near-normal level and is one of the more useful and frequently employed types of tympanoplasties.

Sometimes the crura of the stapes (legs) have also been destroyed by the disease process. Under these circumstances, it is frequently possible to utilize a remaining portion of the incus or malleus to cover the footplate of the stapes, simulating new crura. This ossicular repositioning to simulate the legs of the stapes is classified as Tympanoplasty Type III-B, and will usually give better results than Type IV Tympanoplasty, where there are no legs on the stapes.

TYPE IV—HYPO-TYMPANOPLASTY: When the disease process has destroyed the malleus, the incus, and the crura of the stapes, the new ear drum (skin graft) can be utilized to cover and protect the round window. This creates an air space in the hypo-tympanum from the Eustachian tube to the round window. In the severely handicapped, this will give a partial hearing improvement but where possible every effort should be made to perform a Type III or III-B, a tympano-stapedio-plasty.

TYPE V—FENESTRATION OF THE HORIZONTAL CANAL: When the disease process has destroyed the malleus, incus and crura of the stapes and filled the oval window with irremovable scar tissue, and when the round window is normal, a new oval window can be made in the horizontal semi-circular canal, the classical fenestration operation. With the new ear drum covering the hypo-tympanum, and extending upward over the round window and fenestra, the hearing can be restored to the 30 decibel level. This enables the patient to understand most conversations at ten to fifteen feet. The Type V Tympanoplasty (fenestration) is rarely performed as a primary procedure, but is usually performed as a secondary procedure when Type III or Type IV have failed to produce a satisfactory hearing improvement yet the Eustachian tube, the round window and hypo-tympanum are functional.

Do not let all of these terms confuse you, all you need to remember is the myringoplasty and the tympano-stapedio-plasty, (Types I and III). These are the types most frequently employed and, where applicable, these are the types which will give your patients the best hearing improvement.

MASTOID INFECTION

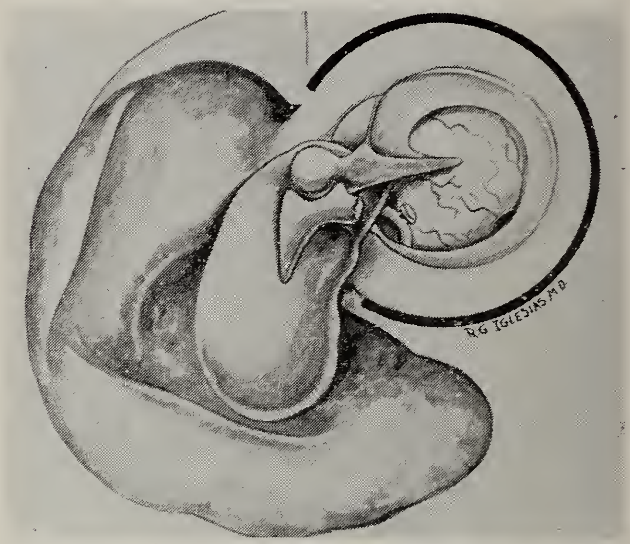


Fig. 6. Perforations in the ear drum are frequently associated with chronic mastoid disease, this requires a combined mastoidectomy and tympanoplasty. In the above illustration, the sac of a cholesteatoma has destroyed part of the incus and we dissected under the incus to fill the mastoid antrum. This normal stapes and the mastoid disease are an indication for a modified radical mastoidectomy and a tympano-stapedio-plasty.

Many perforations in the ear drum are associated with chronic infections of the Eustachian tube, middle ear and mastoid. The infection, or cholesteatoma, must be treated or operated before a successful result can be obtained through a tympanoplasty. Therefore, a modified radical mastoidectomy (Fig. 6), or an atticotomy, is frequently combined with any of the above types of tympanoplasty either in a one-stage or a two-stage operation. These combined mastoidectomies and tympanoplasties are among the most difficult and tedious of all surgical procedures.

Chronic infection in the Eustachian tube and adjacent hypo-tympanum is one of the great causes for failure in tympanoplasty; therefore, the otologist must be on the continuous alert for the detection and treatment of Eustachian tube and middle ear disease.

PREOPERATIVE TESTING

The possible restoration of hearing from tympanoplasty can be predicted and anticipated, by inserting an artificial drum, by testing the mobility of the ossicular chain with an acoustic probe or by sound protection of the round window.

THE ARTIFICIAL EAR DRUM: As an office procedure an artificial ear drum can be inserted temporarily to close a perforation of the ear drum to determine the anticipated restoration of hearing through a tympanoplasty. If the ossicular chain (the malleus, incus and stapes), is freely movable, the patient will experience a dramatic hearing improvement. A tympanoplasty should produce the same hearing improvement as the artificial drum.

ACOUSTIC PROBE: As an office or operating room procedure, the mobility of the ossicular chain (malleus, incus and stapes), may be determined with an acoustic probe attached to an audiometer or a tuning fork. The purpose of the acoustic probe is to compare the bone conduction of the promontory of the cochlea with that of the malleus, the incus, and the stapes. If the bone conduction is best at some point on the ossicular chain, then there is a good possibility of hearing improvement through the appropriate type of tympanoplasty. This testing, along the ossicular chain, helps to determine the indicated type of tympanoplasty, I, II, III, IV, or V.

ROUND WINDOW PROTECTION: In very large perforations, the sound waves reach the oval and round window at the same time, and therefore, do not stimulate the organ of Corti. The hearing can sometimes be improved by protecting the round window with an ointment or cotton. This possible improvement helps to evaluate the possible permanent restoration of hearing with the appropriate tympanoplasty. The sound protection of the round window is one of the basic principles of all middle ear surgery.

ACUTE PERFORATIONS

Acute perforations of the ear drum usually heal spontaneously or with office treatment. This is usually true whether the perforation is the result of an acute otitis media, blast injuries, traumatic injuries, or water injuries from skiing. The general exception to this rule is the anterior-inferior perforation which is produced by slag injuries in metal workers; these slag perforations frequently require a myringoplasty.

When an acute perforation comes into your office, the important thing to remember is not to put drops in the ear, for this will frequently introduce infection into the middle ear, produce a mastoiditis, and complicate the pathology. If infection has been introduced into the middle ear, as in all water ski perforations, the patient should be placed on large doses of antibiotics until all inflammatory reaction subsides.

SUMMARY

1. Under the operating microscope, the surgical pathology of the middle ear becomes significantly more variable than the pathology of any cavity in the entire body.

2. For the surgical restoration of hearing the otologist has seven types of stapes operations—five types of tympanoplasties, and the fenestration operation.

3. The newer types of stapes operations are designed to by-pass the otosclerosis and work through normal stapedial footplate, and thereby to improve the percentage with lasting successful restoration of hearing.

4. The operations upon the stapes are: Total stapes mobilization (direct or indirect), anterior crurotomy, posterior crural repositioning, artificial cruralization, and the oval-window and vein graft.

5. The types of tympanoplasties are: The myringoplasty, tympano-incudo-plasty, tympano-stapedio-plasty, hypo-tympano-plasty, and the fenestration. The indication for each type is dependent upon the remaining portions of the auditory ossicles —the malleus, incus, and stapes.

6. Profound surgical judgment is required for the otologist to evaluate these microscopic variations in the surgical pathology and to apply the appropriate surgical technique to obtain the maximum restoration of hearing through the tremendous surgical armamentarium of the modern otologist.

7. The fenestration operation remains the master surgical procedure for the restoration of hearing in conductive deafness. It is indicated when the stapes is inoperable, the round window is functional, and there is a good inner ear.

BIBLIOGRAPHY

1. Lempert, Julius: Fenestra Nov-Ovalis: New Oval Window for Improvement of Hearing in Cases of Otosclerosis. A.M.A. Arch. of Otolaryng. 34: 889-912 (Nov.) 1941.
2. Rosen, Samuel: Mobilization of the Stapes to Restore Hearing in Otosclerosis. N. Y. State Jn. Medicine 53:22 (Nov.) 1953.
3. Fowler, Edmund P., Jr.: Anatomic Factors in Stapes Mobilization Operations. A.M.A. Arch. of Otolaryng. 63:6:589 (June) 1956.
4. Farrior, J. Brown: Crural Repositioning in Stapes Mobilization Surgery. To be published in The Laryngoscope, 1959.
5. Schuknecht, Harold F., et al: Results with the Chisels in Stapes Mobilization. The Laryngoscope 684:726 (April) 1958.
6. Shea, John J., Jr.: Fenestration of the Oval Window. Annals of Otology, Rhinology and Laryng. 67:4:932 (Dec.) 1958.

7. Wullstein, Horst: Restoration of the Function of the Middle Ear in Chronic Otitis Media. Annals of Otology, Rhinology and Laryng. 65:4: 1020 (Dec.) 1956.
8. Zollner, F.: Surgical Techniques for the Improvement of Sound Conduction after Radical Operation. Arch. Ital. Otol. 64:455-468 (July-Aug.) 1953.
9. Farrior, J. Brown: Stapes Operability—Pathological Indications for Mobilization and Fenestration Surgery. The Laryngoscope, 68:6:947-982 (June) 1958.
10. Farrior, J. Brown: Stapes Operations; Specific Pathological Indications for the Variable Surgical Techniques: Presented Northwestern University Workshop on Reconstructive Middle Ear Surgery—Chicago, Ill., March 17, 1959. To be published.

Corticoids - Precursors of Tuberculosis *

WATTS R. WEBB, M.D., and C. A. WATKINS†
Sanatorium, Miss.

The adrenal corticoids have enjoyed widespread use in recent years, with very evident beneficial results. Since the number of diseases for which they are effective has been steadily increasing, the number of patients receiving steroids has likewise increased. It has been recognized for some time that both ACTH and the adrenal corticoids may be very deleterious in active tuberculosis[1,6,7]. Also recognized, but less well publicized, has been the tendency of these drugs to activate quiescent lesions of tuberculosis[3,9]. Pharmacologically the steroids reduce inflammatory reactions, subdue fever and the accompanying toxic symptoms, suppress local tissue resistance, and thus they may deprive the body of its ability to fight infection systematically. As, in addition they give the patients a feeling of well-being, it is quite possible for a tuberculous lesion to become widespread without producing significant signs or symptoms. Thus, the patient with unrecognized or apparently inactive tuberculosis receiving steroid therapy is in real danger if he is not also receiving antituberculous medication.

While the number of reactivated tuberculous cases may be quite small in proportion to the extremely large number of patients receiving steroids, an increasing number of new and reactivated cases are being seen by chest specialists and several have come forcibly to the attention of our staff at the Mississippi State Sanatorium. These cases have been particularly impressive as often the disease had become extremely far advanced before the diagnosis had been made and treatment started. This may be due to the lack of symptoms or due to the similarity of symptoms to those for which the patient is receiving steroid therapy. Obviously, these cases can create a great public health problem and hazard. The following cases illustrate these dangers:

CASE HISTORIES

Case Number 1 — W. P. W.

A 50-year-old white male was admitted on August 13, 1956. One year previously a biopsy of persistent ulcers beneath his dentures led to a diagnosis of Boeck's sarcoid. A chest x-ray at that time revealed bilateral miliary infiltrates consistent with this diagnosis. Re-biopsy at Johns Hopkins Hospital confirmed this diagnosis and he was started on metacorten up to 90 milligrams daily. In April, 1956, following epididymitis, a transurethral resection was performed and the resected tissue was considered consistent with Boeck's sarcoid. The patient gradually became worse, with anorexia, weight loss, fatigability, a constant temperature of 102-103°F., and just prior to admission the sputa were found to be positive for tubercle bacilli.

Physical examination showed a thin, emaciated, irrational, acutely ill male receiving oxygen. There were ulcerations of the tongue, gums, and most of the mouth. The heart rate was rapid and irregular, with a faint systolic murmur at the base. There was impaired resonance of the lower half of both lung fields, with rough breath sounds and medium coarse rales. The chest x-ray showed massive bilateral patchy and confluent infiltrations almost completely filling the lungs.

The sputa were positive and remained so throughout his admission. He received streptomycin, PAS, isoniazid, cycloserine, and pyrazinamide. Cultures showed complete resistance of the organisms to streptomycin, PAS and isoniazid. The patient showed very gradual symptomatic and radiologic improvement but was left with large residual cavities in both apices, which would have required surgical therapy had his condition ever become satisfactory for such. The patient died of massive myocardial infarctions in November, 1958.

Comment: No one, as yet, is certain what "Boeck's sarcoid" represents, or its relationship to tuberculosis. As ten per cent of all patients with such a diagnosis die of tuberculosis, it seems logical to give all such patients anti-tuberculosis drugs if steroid therapy is indicated. When steroid therapy proves of no avail as here, it would seem better to re-evaluate the situation and discontinue the steroid therapy.

CASE NUMBER 2 — O. W. S.

A 26-year-old white woman was admitted March

---

†From the Departments of Medicine and Surgery, Mississippi State Sanatorium, Sanatorium, Mississippi.

10, 1958. In 1948 she had remained in bed for eight months with a diagnosis of rheumatic fever. In 1950 the patient's father was found to have tuberculosis and a small infiltrate in patient's left lung was thought to be due to lupus erythematosis, as tuberculosis could not be proved and the lesion gradually resolved. In 1952 she remained in bed for five weeks because of recurrent rheumatic fever with edema of the feet and ankles.

In 1955 joint pains and a butterfly rash on her face again led to the diagnosis of lupus erythematosis. She remained on 15 to 30 milligrams of cortisone daily from September, 1955, until her admission. In January, 1959, after an attack of "flu", a definite diagnosis of active tuberculosis was made. Bronchial washings were positive for tubercle bacilli, and her husband of six months was likewise found to have active pulmonary tuberculosis.

Physical examination showed a well-developed, well-nourished white woman showing an erythematous rash over the face, forehead and upper anterior chest. The lungs were clear and the heart normal in size. At the apex was a grade II high-pitched crescendo systolic murmur and a very faint presystolic murmur. The blood pressure was 120/80. There was no clubbing, cyanosis or edema. The sputa were positive on admission but negative thereafter.

The cavitary lesion of the right apex, present on admission, gradually cleared to a small fibro-cavitary residual which necessitated resection of the apical and posterior segments of the right upper lobe on November 7, 1958. Her convalescence was completely uneventful. The presumed mitral stenosis has never become symptomatic and is not thought to require surgical relief at this time.

Comment: The family history of tuberculosis and an old undiagnosed infiltrate are enough to justify the use of anti-tuberculosis drugs along with cortisone. This entire episode of tuberculosis might have been averted by this precaution.

CASE NUMBER 3 — T. I. C.

A 43-year-old man, a chronic smoker, was admitted January 4, 1958, having been treated for over ten years for cough and expectoration due to "emphysema and bronchiectasis." He had been treated twelve years for rheumatoid arthritis and five years for a peptic ulcer. For two years prior to admission he had been receiving intensive therapy with steroids for the rheumatoid arthritis. For six months the cough had been increasing and he had noted increasing fatigability, anorexia, and thirty pounds weight loss. Two weeks prior to admission he started having fever, pulmonary hemorrhages, and increased cough and sputum.

Physical examination showed an emaciated, acutely ill man with a temperature of 102 degrees. There was dullness in the upper third of the right lung, with bronchial breathing and coarse rales throughout the entire right lung and the mid-lung field on the left.

The chest x-rays showed heavy densities in both apices, with a cavity and heavy mottling throughout the mid-lung field on the left and in the lower half of the right lung. As the sputa were loaded with acid-fast bacilli, he was started on streptomycin and isoniazid therapy. PAS was not used due to the ulcer history. Under treatment his fever subsided, the hemorrhages ceased, and the pulmonary infiltration gradually cleared except for residual cavitary lesions of the left upper lobe, which will probably require surgical therapy.

Comment: This case illustrates the insidious nature of tuberculosis developing in the patient who already has pulmonary disease, presumably non-tuberculous. Certainly until late in the course it was easy to account for the respiratory symptoms on the basis of his known bronchiectasis. We would recommend giving patients with any pulmonary disease anti-tuberculosis drugs concomitantly with the steroids.

DISCUSSION

Recently corticoids have had an enlarging usefulness in the treatment of fulminating tuberculosis[8]. Indeed, they may mean the difference between life and death in miliary disease, tuberculous meningitis, and other rapidly progressive tuberculous lesions[2,5]. This is true, however, only if they are used as an adjunct to effective anti-tuberculous therapy. We have been forced to use steroids for other disease entities in several cases of active pulmonary tuberculosis with cavitation, with much trepidation at first, and were gratified to find, as others have, that they seemed to enhance rather than retard the acute anti-tuberculosis drug effect.

The purpose of this presentation is not to suggest that corticosteroids are being used promiscuously, but to emphasize the pulmonary hazards of steroids, even when used on excellent indications. It is suggested that the following principles be observed before starting steroids in all non-emergency use of corticoids and kept in mind in all cases: 1) The work-up should include an adequate history concerning tuberculosis or contact with tuberculosis patients, intradermal tuberculin skin test and chest x-ray. If these are all negative the possibility of the development of tuberculosis should be borne in mind and chest films made at two to three month intervals, even in the absence of symptoms, if treatment is prolonged.

2. Excessive dosage or duration of steroids should be avoided. The newer drugs, such as prednisone and prednisolone, have minimal side reactions and allow relatively large doses. This is apparent when one recalls that the pituitary gland secretes only about one unit of ACTH daily and the adrenals 12 to 20 milligrams hydro-cortisone per day[4].

3) In the presence of any chronic chest disease, presumably not directly related to tuberculosis such as emphysema, chronic bronchitis or bronchiectasis and more especially any pulmonary manifestation of ill-defined entities such as the collagen diseases and sarcoidosis, it would seem advisable to give anti-tuberculosis drugs concurrently with prolonged corticoids. This may seem unduly cautious to those not dealing with tubercu-

losis, but it must be remembered that corticoids and very potent drugs, that tuberculosis is still a prolonged and frequently fatal disease, and that isoniazid (isonicotinic acid hydrazide) and PAS (para-amino-salicylic acid) are inexpensive and innocuous in accepted doses.

SUMMARY

This publication has attempted to call attention to the frequent activation of previously undetected tuberculosis following use of corticosteroids. Every patient should be fully evaluated for the possibility of tuberculosis before the use of prolonged steroid therapy. Corticoids should be given in minimal doses and for minimal periods of time compatible with desired clinical results. In the presence of active tuberculosis, sarcoidosis, any undiagnosed pulmonary lesion, and probably any significant chronic pulmonary disease, the antituberculosis drugs should be given concurrently with corticoids.

REFERENCES

1. American Trudeau Society, Effect of Cortisone and/or Corticotropin on Tuberculous Infection in Man: Statement prepared by Committee on Therapy, Amer. Rev. Tuberc. 66: 254, 1952.
2. Des Autels, E. J., Zvetina, J. R., Berg, G. S., Pershing, J., and Freeman, S., The Effects of Corticotropin (ACTH) and Cortisone in Fifteen Cases of Pulmonary Tuberculosis, Diseases of the Chest 30: 486, 1956.
3. Fred, L., Levin, M. H., Rivo, J. B., and Barrett, T. F., Development of Active Pulmonary Tuberculosis During ACTH and Cortisone Therapy, J.A.M.A. 147: 242, 1951.
4. Hardy, J. D., and Turner, M. D., Hydrocortisone Secretion in Man: Studies of Adrenal Vein Blood, Surgery 42: 194, 1957.
5. Houghton, L. E., Combined Corticotropin Therapy and Chemotherapy in Pulmonary Tuberculosis, With Special Reference to Hypersensitive Reactions, Lancet 1: 595, 1954.
6. King, E. Q., Johnson, J. B., Batten, G. S., and Henry, W. L., Tuberculosis Following Cortisone Therapy: Report of Case of Rapidly Progressive Pulmonary Tuberculosis Following Cortisone Therapy for Rheumatoid Arthritis, J.A.M.A. 147: 238, 1951.
7. Popp, C. G., Ottosen, P., and Brasher, C. A., Cortisone and Pulmonary Tuberculosis, J.A.M.A. 147: 241, 1951.
8. Shubin, H., Lambert, R., Heiken, C. A., and Singhaphakdi, S., The Place of Steroids in Pulmonary Disease, Dis. of the Chest, 34: 138, 1958.
9. Traut, E. F., and Ellman, J., Exacerbation of Tuberculosis During Treatment With Cortisone, J.A.M.A. 149: 1214, 1952.

Some Remarks Relative to Dental Health[*]

CHARLES C. BASS, M.D.[†]
New Orleans, La.

Your invitation to me to be present here today gives me an opportunity to present a brief statement relative to the work in which I have been engaged for many years. Several years ago, after I was retired from active duty, I undertook intensive study and research relative to the cause and prevention of the two principal diseases from which almost all loss of teeth results, viz. caries (tooth decay) and periodontoclasia ("pyorrhoea").

Practically all people in this country have more or less caries. The average ten-year-old child has already more than two decayed, missing or filled teeth. By 15 or 16, he has several more and by adult age, still more. Treatment, fillings and restorations of decayed teeth usually last for only a limited length of time. They generally break down, sooner or later, and have to be renewed from time to time, throughout life or until the tooth is finally lost. Periodontoclasia is a universal disease of man, beginning in childhood and never ending until all the teeth are lost, if the individual lives long enough. These two diseases together present this nation's most prevalent health problem.

Caries causes less than 25 per cent of the loss of teeth in America; periodontoclasia more than 75 per cent. Damage to the dentition from these diseases accumulates as the individual grows older. Many people have lost most of their teeth or are entirely edentulous by the age of 50; many more by 60.

Life expectancy is rapidly increasing and so is the proportion of older people in the total population. Now, one of every 11 persons is past 65; and the percentage will most certainly be increased as further medical advances are made. If we take 70 years as a convenient figure for life expectancy at the present time, it is evident that a large proportion of the population must spend many years of their lives toothless or nearly so.

The long continued infectious pathological conditions in these diseases and the ultimate loss of teeth therefrom impairs, more or less, the health, the nutrition, the pleasure, the comfort, the welfare, and the longevity of all people in all walks of life. Under these circumstances prevention of these diseases and prevention of further advancement of existing lesions is of the greatest importance. Prevention in this case offers not only longer life but happier, more pleasant and more enjoyable life.

---

[*] Presented at the annual meeting of the Fifty-Year Club, May 12, 1959, Biloxi, Mississippi.

[†] Tulane University School of Medicine, New Orleans, Louisiana.

The universal prevalence of these diseases, the constant accumulation of the damage, the crippling and the disfigurement they cause and their end results, even in people who do take advantage of the best dental health service available, all go to show that whatever is known and done is quite inadequate to prevent them and their consequences. Something more, something different, something better is necessary.

Measures for prevention of these diseases and for prevention of further damage by them must be based upon correct information as to the local etiological and pathological conditions. Each of them is caused by microscopic organisms, the early lesions are microscopic in extent, they advance microscopically, the tissues involved are composed of microscopic elements and the pathological processes by which the tissues are destroyed are microchemical. Therefore, one can know of his own knowledge and understand the etiological conditions at the locations where the lesions originate and advance, only by microscopic studies of appropriate material, mostly extracted tooth specimens and biopsy material.

Employing technics and methods acquired through many years of teaching and research, concerned largely with microscopic pathological processes and micro-organisms, it was possible to secure accurate information as to the local etiological conditions that have to be prevented or minimized in these diseases. Most of these observations relative to these conditions have been described in a number of publications.

Based upon this necessary information, and upon information published by others, and after considerable experimentation I designed and have described in detail[1],[2] the method of personal oral hygiene which every person must know and follow to maintain the highest degree of oral cleanliness and dental health. For all practical purposes these two diseases can be entirely prevented or controlled if this exact method is followed. They cannot be without it.

Our method is different from, and in some particulars quite the opposite of oral hygiene practices generally recommended[3] and followed. Oral hygiene is a personal and an individual matter. Each person must be taught by someone who knows the method (there is only one effective method now known) and the basis for it and who is capable of teaching it to others.

People rely upon the dental profession, not only for treatment and repair of damage they have sustained from dental disease, but also for advice and information about prevention of future damage. By application of the information we now have, not information that must be discovered later, every normal person should retain all of his teeth through ripe old age. By learning and following the method of personal oral hygiene we know to be necessary and effective, under the supervision of informed and interested dentist health service, no normal person should ever lose one tooth from either caries or periodontoclasia.

Some of the dentists in more than half of the states in the United States are now teaching and recommending this effective method to their suitable patients, as a part of their service. Much the largest number of these are in Texas. This is explained by the fact that the method and the information upon which it is based have been taught, for several years, at University of Texas, Dental Branch. No doubt similar results will follow whenever, as surely will have to be done sooner or later, the method and the facts upon which it is based are taught at dental schools in other states. Further delay in this regard is a reflection upon dental education in this country.

1430 Tulane Avenue

REFERENCES

1. Bass, C. C.: The necessary personal oral hygiene for prevention of caries and periodontoclasia. New Orleans M. and S. J., 101:52, 1948.
2. Bass, C. C.: An effective method of personal oral hygiene. J. Louisiana State M. Soc., 106:57; 106:100, 1954.
3. Bass, C. C.: Some important developments presently influencing dental health. J. Louisiana State M. Soc., 109:201, 1957.

SMALLPOX WARNING

A recent outbreak of smallpox in Germany emphasizes the need for all Americans, especially those in contact with the traveling public, to receive smallpox vaccinations, U. S. Surgeon General Leroy E. Burney said. Adult Americans who have not received immunization in recent years should consider another one, he said.

Cobalt-60 Teletherapy
in the Treatment of Malignancy *

BERNARD T. HICKMAN, M.D.†
Jackson, Miss.

Types of Malignancies Treated with Cobalt-60 Teletherapy at University Medical Center, Jackson, Miss., from November 1955 to April 1959.

TABLE I

Sinuses and Oral Cavity	59
Lymph Nodes (Metastatic)	17
Larynx	26
Esophagus	18
Lungs and Bronchi	99
Breast	42
Cervix uteri	115
Corpus uteri	12
Ovary	14
Urinary Bladder	23
Genitourinary Tract (other than Bladder)	24
Lymphomas, Leukemia and Myelomas	71
Miscellaneous Malignant Lesions	41
Miscellaneous Benign Lesions	37
Total	598

THIS ARTICLE IS written primarily to acquaint the physicians of Mississippi with the indications for and the limitations of Cobalt-60 irradiation in the treatment of malignancy. It is based on the experience gained with the Cobalt-60 unit at the University Medical Center. This unit has been in operation since November 1955, and to date a total of 598 patients have received cobalt therapy. A breakdown of these cases in terms of the types of malignancy treated is presented in Table I. It will be noted that the two largest groups of patients treated are those with carcinoma of the uterine cervix and bronchogenic carcinoma.

At the University Medical Center, as is generally the trend throughout the United States, most malignancies are first attacked surgically if feasible. This, of course, does not include carcinoma of the uterine cervix, in which irradiation is the treatment of choice[9], or the lymphomas where chemotherapy and irradiation offer the main lines of defense[4],[7]. In addition, there are certain lesions in which radiation may compete with surgery as the primary treatment of choice, as is carcinoma of the larynx[3] or upper esophagus[2]. In some instances a combination of surgery and irradiation is ideal in the initial treatment, as in carcinoma of the breast[5] or maxillary sinus.

In practice, however, many of the major malignancies are obviously uncurable when the patient first seeks medical advice, or else recurrences develop following attempts at cure by surgery or irradiation. Hence the majority of patients coming to a radiation therapist are candidates for palliative rather than curative therapy. While this fact is in some ways distressing, one should not underestimate the value of palliation. After all, there are many disease processes in which our only treatment to date is aimed at palliation or symptomatic relief, rather than cure.

Deep x-ray therapy (treatment of deep-seated neoplasms by an external radiation source) is most commonly accomplished by conventional x-ray therapy machines operating at electrical energies ranging from 200,000 to 500,000 volts. In a few of the larger medical centers throughout the country units are available in which the x-ray beam is generated by 1,000,000 to 4,000,000 volts (so-called supervoltage units). With the advent of the atomic age it became possible to utilize some of the artificial radioactive isotopes as a radiation source, and for the purposes of deep therapy Cobalt-60 has been the most widely accepted.

In brief, stable cobalt (Co-59), after a suitable period of neutron bombardment in a uranium reactor, is converted to radioactive Cobalt-60. The treatment beam coming from such a radioactive cobalt source is equivalent in energy to the beam produced by an electrical unit operating at 3,000,000 volts[8]. Thus a Cobalt-60 unit is well up in the supervoltage range of therapy.

The aim of irradiation therapy in the treatment of malignancy, regardless of whether one is thinking of palliation or cure, is to destroy as many of the neoplastic cells as possible, and at the same time to do as little damage as possible to the surrounding or intervening normal tissues. With all radiation therapy units it may on occasions be difficult or impossible to deliver an ideal tumor dose because of excessive damage to the normal tissues, and from a practical standpoint it is the skin which has usually been the limiting factor. In an effort to give an adequate dose of radiation to a deep lying tumor with conventional therapy units the radiologist may be forced to injure the skin to the point of moist desquamation (equivalent to a second degree thermal burn). Here then, lies the real advantage of supervoltage therapy, regardless of whether it is derived from a Cobalt-60 unit or high energy electrical sources[6]. The higher the energy of the radiation beam, the more penetrating power it possesses, so that for any given dosage of radiation on the skin one can, with a supervoltage source, deliver a proportionately higher quantity of radiation to a deep lying tumor than with lower energy radiation sources. In addition, the maximum effect of a cobalt beam occurs just below the skin, resulting in a further "skin sparing effect"[8]. This is not true with more conventional therapy units, where the maximum intensity of irradiation is on the skin itself. In practice, therefore, one is able with a cobalt beam to deliver a high dose of radiation deep within the body, accompanied at the worst by only a mild erythema of the skin in the treatment field. The late skin changes, consisting of atrophy and telangiectasia, are also minimized. It also means that patients who have had intensive treatment previously with conventional x-ray can be retreated later with cobalt[11].

---

†From the Department of Radiology, University of Mississippi Medical Center, Jackson, Mississippi.

Radiation sickness has always been a problem when large doses of x-ray are administered to the abdominal area, especially the upper abdomen. There are still many unexplained facets to this entity, but for some reason Cobalt-60 teletherapy produces a decreased incidence of radiation sickness as compared with lower energy x-ray beams[10].

Another definite advantage of the Cobalt-60 teletherapy machine, particularly to the radiologist, is the simplicity of operation and maintenance. The output from the cobalt source is calibrated at the time it is placed in the machine, and the exact output at any given time thereafter can be easily calculated on the basis of a simple mathematical formula. As opposed to other high energy radiation sources, the cobalt unit has no complicated electrical circuits, tubes or generating devices demanding constant maintenance and calibration[1].

As is the case with almost everything, there are also some disadvantages of a Cobalt-60 teletherapy unit. One real disadvantage is the initial cost of such machines. The most economical teletherapy unit with its source of radioactive cobalt costs around $25,000, and this does not include preparing a suitable room for the unit. Because of the marked penetrating power of the radiation beam, special problems in protection arise, and for this reason most teletherapy units are located in basements so that the surrounding earth outside the walls of the room can be utilized as absorbing material[1]. The walls of the room housing the cobalt unit at the Medical Center are poured concrete 14 inches thick. Another expense that must be considered is that of replacing the cobalt source when its radiation output decreases below the point that is practicable for everyday usage. The so-called half life of Cobalt-60 is 5.3 years. The penetrating power of the radiation beam does not change as the source runs down, but there is a gradual decrease in the quantity of radiation delivered per unit of time. For example, if when the source is new it takes 15 minutes to deliver a given quantity of radiation, at the end of 5.3 years it takes 30 minutes to deliver the same dose of radiation. The length of treatment time obviously becomes of importance if one is attempting to treat a large number of patients.

From the standpoint of tumor therapy the fact that the cobalt radiation beam has such great penetrating power is a disadvantage if the lesion to be treated is a very superficial one, located in or just below the skin. For the same reason, cobalt units are not adaptable for direct intravaginal or intraoral cone therapy, since one cannot easily devise lead shields thick enough adequately to protect the surrounding tissues. The same difficulty applies to face lesions if it becomes necessary to protect the eyes.

These few disadvantages, however, are far outweighed by the advantages occurring with radiation of the supervoltage range. The ability to deliver an adequate tumor dose deep within the body with decreased patient morbidity is of paramount importance.

BIBLIOGRAPHY

1. Braestrup, Carl B.: Physical and clinical advantages and limitations of Cobalt-60 teletherapy. *The American Journal of Roentgenology, Radium Therapy and Nuclear Medicine,* 1959, 81, 13-18.
2. Burnett, Harry W., Jr., and Moore, S. W.: Squamous cell carcinoma of the thoracic esophagus. An evaluation of treatment methods. *American Journal of Roentgenology, Radium Therapy and Nuclear Medicine,* 1956, 76: 949-955.
3. Cantrill, Simeon T.: Radiation therapy in cancer of the larynx. *The American Journal of Roentgenology, Radium Therapy and Nuclear Medicine,* 1959, 81, 456-474.
4. Elkins, H. B.: Treatment of malignant lymphoma and blood dyscrasias by conventional roentgen therapy. *American Journal of Roentgenology,* Radium Therapy and Nuclear Medicine, 1956, 76: 960-964.
5. Garland, L. Henry: The treatment of cancer of the breast. *Radiology,* 1958, 70: 159-190.
6. Guttmann, Ruth J.: Physical and clinical advantages and limitations of Cobalt-60 teletherapy. *The American Journal of Roentgenology, Radium Therapy and Nuclear Medicine,* 1959, 81, 19-23.
7. Hall, Charles A., and Olson, Kenneth B.: Therapy of malignant lymphomas. I. A study of 116 cases. II. A review. *American Journal of Medicine,* 20: 392-398, 399-411, March 1956.
8. Meredith, W. J.: Some aspects of supervoltage radiation therapy. *The American Journal of Roentgenology, Radium Therapy and Nuclear*

(continued on page 47)

Prostatic and Testicular Malignancies

JULIAN WIENER, M.D.
Jackson, Miss.

As subjects of prostatic and testicular malignancies are rather complex, no attempt will be made to give a detailed presentation about these. Rather, a more or less general review will be given and it is hoped that this will stimulate the reader to pursue further the available literature. It must be stated, with regret, that no significant advances have been made in the treatment of either of these malignancies within the past decade. Fortunately there is much work in progress throughout this country and the world so that it is hoped the above statement will not be true in several years.

PROSTATIC MALIGNANCIES

Sarcomas of the prostate are rarely seen, and those reported are predominantly in young children. Obstructive urinary symptoms with a lower abdominal and rectal mass are the first things generally noted, and diagnosis is confirmed by biopsy. At this stage surgery is futile and only temporary response to irradiation is obtained. Prognosis is slightly better in the few cases seen in adults, as symptoms are noted earlier in the course of the disease.

The great bulk of malignancies of the prostate fall into the classification of adenocarcinoma. Rare epithelial tumors of the prostate are encountered, but for practical purposes these are of no clinical significance. In this paper, as in most communications, the terms "cancer of the prostate" and "carcinoma of the prostate" refer exclusively to adenocarcinoma. Statistics on the incidence of this disease vary, depending somewhat on the terminology used. Some authors state that between fifteen to twenty-five per cent of men over the age of fifty-five have carcinoma of the prostate. Certainly this does not refer to clinical carcinoma of the prostate which will involve an estimated 0.65 per cent of men over fifty-five. Despite the great volume of papers on this subject, early diagnosis is still not common. Cancer of the prostate can occur at any age, and I most fervently urge that ALL of you, especially the general practitioners, do routine rectal examinations on all of your male patients over forty years of age. All suspicious lesions should be regarded as carcinoma of the prostate until proved otherwise. If you wait until rectal examination is diagnostic it is generally too late to cure this fatal disease.

Numerous studies have been done on the cytological diagnosis of prostatic cancer from prostatic secretions. The conclusions are not always in agreement, but it is generally believed that Papanicolai stains are not diagnostic in a given case of this type. However, such stains are of value when used for large scale cancer detection[1]. Some cancers will be missed and false positives will be obtained, but the results are stated to be accurate enough to bring many early cases to our attention for more detailed study. If monies and trained personnel are available, it is suggested that the Mississippi Division of the American Cancer Society undertake such a mass survey on the male population of this state over the age of forty-five. Smears could be obtained in each locality by the private physicians, could be immediately placed in the fixative solutions, and later forwarded to a central point for staining and screening. I do not know of any similar surveys having been made elsewhere, but someone must take the initiative to lower the death rate from this disease.

As previously stated, there has been no recent change in treatment of cancer of the prostate. Radical surgery is still advised in those cases under the age of seventy who are good surgical risks and show no evidence of spread of the disease as indicated by physical examination, x-rays, acid phosphatase determinations or the marrow biopsies. Approximately one-third of this group can expect ten-year "cures." Whether a perineal or retropubic approach is used makes little difference, and each has its advocates.

In those patients with local spread of the cancer, but no distant metastasis, injection of radioactive gold into the prostate has given encouraging results[2]. With more experience, the complications of this type of treatment have been reduced and the prognosis for those who are in this group of patients seems better than with hormonal therapy. There has not been, however, sufficient time to evaluate adequately the results of this treatment. Other types of irradiation have not proved satisfactory, but occasionally will give relief of symptoms in far advanced cases. Radioactive phosphorus has been used experimentally in treating metastatic bone lesions in a small group of patients with carcinoma of the prostate[3]. Results are encouraging, but have not been fully evaluated.

Since Huggins in 1941 showed that prostatic carcinoma is androgen dependent, hormonal therapy has been widely used in treatment of this condition. Where metastases are present, this is still the treatment of choice but some difference of opinion still exists as to the exact method used. Nesbit and Baum in 1950 reviewed approximately 1500 cases treated with either orchiectomy, diethylstilbestrol, or both[4]. (Figure 1). In cases without metastases on admission a combination of orchiectomy and stilbestrol gave a five-year survival rate of 44 per cent as compared to about 30 per cent for either alone. When metastases were present on admission orchiectomy, alone or with diethylstilbestrol, gave a five-year survival rate of about 20 per cent as compared to 10 per cent for the drug alone. Despite these figures there is no unanimity of opinion as to the treatment of choice, but the combination of orchiectomy and estrogens is generally advised. Use of either estrogens or orchiectomy is the initial choice of some writers, but others prefer combining these when the diagnosis is first made. A large percentage of these patients will show initial response to these modes of therapy but will eventually relapse and require further care. Bilateral adrenalectomy, with maintenance on oral cortisone, seems to offer some relief of pain but no appreciable increase in life expectancy. Actually, this procedure in prostatic carcinoma usually gives no more benefit than oral cortisone, alone. In terminal cases, doses of 50 mgm. two to three times a day will give some relief. Newer corticoid preparations are under investigation and some show promise of better control of the malignancy. Hypophysectomy has been used experimentally but offers little help, as does irradiation of the hypophysis.

— FIGURE 1 —

5-YEAR SURVIVAL RATES WITH PROSTATIC CARCINOMA
(After Nesbit and Baum)

	Orchiectomy Alone	Stilbestrol Alone	Orchiectomy and Stilbestrol
Without Metastasis	31%	29%	44%
With Metastasis	20%	10%	21%

— Figure 2 —

MORTALITY RATES WITH TESTICULAR MALIGNANCIES

Group	2-Year Mortality	5-Year Mortality
I	6.4%	10.5%
II	58.7%	64.5%
III	26.1%	29.2%
IV	47.9%	29.2%
V	83 %	100 %

KNOWN METASTASIS AT TIME OF DIAGNOSIS
11%
32%
24%
19%
?

Transurethral resection is still used to treat obstructive symptoms in advanced cases. No mention has been made of the so-called "occult" cancer found at the time of prostatic surgery for benign hyperplasia. Generally, this is not of clinical significance but these patients should be followed more carefully than the usual post-prostatectomy patient.

TESTICULAR MALIGNANCIES

It has been estimated that testicular tumors comprise from 1.5 to 2.0 per cent of all malignant tumors of the male and 9.5 per cent of malignant tumors of the male genito-urinary tract. Statistics in 1945 attributed 0.67 per cent of all male cancer deaths to tumors of the testis, epididymis and seminal vesicles. Moore[5] reported that in the male army population from 1940 to 1947 testicular tumors comprised 9.0 per cent of all cancers. The greatest incidence was in the 24- to 35-year-old age groups.

This series of cases was reported by Dixon and Moore in *Cancer,* Volume 6, May, 1953. The subject is thoroughly reviewed in this paper, and it is highly recommended that all interested persons read this article in its entirety. A series of 990 testicular tumors from Army personnel were carefully evaluated. The incidence seemed higher in officers than in enlisted men, and higher in whites than colored personnel. A definite increase in incidence was noted in undescended testis. Moore and Friedman[6] had previously classified tumors of the testis and estimated that 35 per cent were seminoma, 35 per cent were teratocarcinoma, 19 per cent embryonal carcinoma, 7 per cent teratoma, 1 per cent interstitial cell tumor, and 3 per cent miscellaneous. The first four groups (seminoma, teratocarcinoma, embryonal carcinoma and teratoma) were classed as germinal tumors, and in the later article were found to comprise 96.5 per cent of the total group whereas the non-germinal group (made up of interstitial cell tumors, adrenal rest, fibromas, sarcomas, etc). comprised 3.5 per cent.

It was found that the fifteen possible combinations of the germinal groups could be divided into five groups depending on their clinical behavior. These were: Group I—Seminoma, pure; Group II—Embryonal Carcinoma, pure, or with seminoma; Group III—Teratoma, pure or with seminoma; Group IV—Teratoma, with either embryonal carcinoma or choriocarcinoma or both, and with or without seminoma; Group V—Choricarcinoma, pure or with either embryonal carcinoma or seminoma or both. Of the total series, Group I comprised 38 per cent; Group II, 20 per cent; Group III, 9 per cent; Group IV, 32 per cent; and Group V, 1 per cent. The two-year and five-year mortality rates are given as follows (Figure 2): Group I, 61.4 per cent and 10.5 per cent; Group II, 58.7 per cent and 64.5 per cent; Group III, 26.1 per cent and 29.2 per cent; Group IV, 47.9 per cent and 52.2 per cent; Group V, 83 per cent and 100 per cent. As can be noted, an extremely high mortality rate is found in all malignant tumors of the testis except pure seminomas and teratomas, either pure or with seminomas. Even in these two instances the prognosis is not good. The decreased mortality rate in Group I is believed due to the universal use of radiation therapy in the Army. The incidence of metastases at the time of diagnosis in Group I was 11 per cent, in Group II, 32 per cent, in Group III, 24 per cent, and in Group IV, 19 per cent.

Symptoms of the tumor itself are local pain and enlargement. Pain is usually a relatively late symptom, and despite the accessibility of the testis, enlargement is noted relatively late. Other symptoms, such as cough, weight loss and distant pain, are due to metastases and are poor prognosis signs.

Diagnosis is generally based on palpation of a mass within the testis. Not infrequently, metastases are found first, and the diagnosis is made after search for a primary. In unusual cases the primary lesion in the testis may not be palpable and diagnosis is only made at the time of post-mortem examination. Any scrotal mass must be regarded as a carcinoma of the testis until proved otherwise. Hydroceles may co-exist with testicular tumors and if these are not surgically removed they should be aspirated so that the testis can be carefully examined. Epididymo-orchitis is probably the most difficult condition to differentiate from testicular tumor. This is usually associated with an elevated white count and fever, but tumors of the testis may also cause changes. The history may be of value in differentiating these entities, but if there is any doubt in the mind of the examining physician surgical exploration is indicated. In two separate reviews of the subject it was found that over seven months elapsed between the time the patient first sought medical advice until the testis was removed. Biopsy of the testis is not advised. Hormonal assays are of little diagnostic value, but may have slight prognostic value.

If there is a definite tumor of the testis present, the spermatic cord is exposed and high ligation accomplished, after which the testis is removed for histological study. If one suspects cancer of the testis, the cord is isolated and clamped with rubber-shod instruments. The testis is then exposed, and if any abnormal mass is present within it, orchiectomy is then done. Frozen sections may be made or the results of permanent sections awaited.

There is some difference of opinion as to treatment of germinal tumors of the testis, but only in relatively minor details. Pure seminomas respond fairly well to irradiation, and this is usually begun immediately and delivered to the periaortic nodes up to the level of the renal pedicles. Kimbrough[7] advises irradiation and resection of the retroperitoneal lymph nodes. He treats all other types of testicular tumors in the same manner and reports a five-year survival rate of 31.7 per cent. However, he does not give a breakdown as to the type of tumor or whether lymph node metastasis was present at the time of the surgery.

A tumor dose of 1000 to 2000 r is usually given for seminoma. All other germinal tumors are treated by orchiectomy and retroperitoneal lymph node resection. Irradiation is advised following this, but the advised dosage varies. When positive nodes are found along the aorta, some authors recommend contralateral periaortic node dissections. None of the radical surgical procedures offers good prognosis, but Dixon and Moore gave the following mortality rate two years after orchiectomy as compared to radical surgery: Group I, 6 per cent and 9 per cent; Group II, 63 per cent and 44 per cent; Group III, 26 per cent and 10 per cent; and Group IV, 50 per cent and 43 per cent. Most authors agree that the major hope of reducing the high mortality of testicular tumor lies not in more refined surgical techniques or in more powerful radiation devices *but in early recognition of the lesion.*

As with other types of cancer, various drugs have been used in the treatment of tumors of the testis. Estrogens do not seem to be of much value, but with seminoma one report of the disappearance of a post-irradiation metastasis was recorded following use of estrogens. Several encouraging reports have been received on the use of urethane, nitrogen mustard, nitrofurazone (furacin), and other drugs. No large series using such medications has been reported and at the present time this must still be considered as experimental work.

In reviewing the subject of testicular tumors one may summarize by saying that early diagnosis is most important and surgical exploration is indicated if there is doubt as to the diagnosis. Determination of the presence of metastases is always of importance, and determination of urinary gonadotropins may be of some prognostic aid. Orchiectomy is indicated in any tumor of the testis, and is accomplished with high ligation of the cord. The surgical specimen should be examined on multiple blocks taken from various areas of the testis and from blocks taken from the cord. Postoperative irradiation is indicated in all malignant tumors, and retroperitoneal lymph node dissections to the renal level are advised with all tumors except seminoma if no distant metastasis is present. Such surgery may be performed with seminomas, but the results have not been proved superior. Postoperative x-rays are made over a period of years to rule out subsequent metastases. With choriocarcinomas postoperative tests for urinary gonadotropins should be done for at least several years.

A brief review of malignancies of the prostate and testis has been presented. These tumors have several things in common: Despite the accessibility of both organs to routine examination, cancers of each are usually diagnosed late and have poor prognoses at this time. Furthermore, both groups of malignancies are amenable to surgical "cures" when an early diagnosis is made. It is urged that these conditions be kept in mind during examinations of all males.

REFERENCES

1. Frank, I. N. and Scott, W. W.: J. Urol., 79: 983, 1958.
2. Flocks, R. H.: J.A.M.A., 163: 709, 1957.
3. Maxfield, J. R. and Maxfield, W. S.: South. M. J., 51: 320, 1958.
4. Nesbit, R. M. and Baum, W. D.: J.A.M.A., 143: 1317, 1950.
5. Dixon, J. J. and Moore, R. A.: Causer, 6: 427, 1953.
6. Friedman, N. B. and Moore, R. A.: Military Surgeon, 99: 573, 1946.
7. Kimbrough, J. C. and Borski, A. A.: South M. J., 46: 486, 1953.

Poliomyelitis in Mississippi Preliminary Report, 1958 [*]

DURWARD BLAKEY, M.D., M.P.H.[†]
Jackson, Miss.

Final analysis of the poliomyelitis experience for the state during 1958 is incomplete due, in large part, to delay between clinical diagnosis and receipt of laboratory reports. However, the provisional figures and completed portions of the analysis are worthy of a preliminary report at this time. The changing pattern of occurrence of poliomyelitis reflects vaccine usage and indicates areas in need of special attention.

Reporting: Clinically, the year was marked by efforts to distinguish between polio, the aseptic meningitis syndrome and encephalitis due to other causes than poliovirus. A total of 117 cases of polio was reported; 75 aseptic meningitis; and, 31 encephalitis, not polio. Specimens suitable for virus laboratory study were submitted in almost seventy-five per cent of the polio cases. This level was not maintained in the other groups due to both mildness and brevity of the illness.

Four distinct outbreak situations were observed probably due to other than poliovirus. These point up the difficulty of clinical evaluation alone. In one, the syndrome was so mild that few were referred to diagnostic centers and, even then, specimens for virus study were not taken. However, the association of cases within the family and community, occurrence of morbilliform or scarlatiniform rash and preponderance in children all in association with a polio-like syndrome closely resembles previously reported outbreaks due to other entero-viruses.

In two other situations, virus specimens were collected and ECHO and Coxsackie agents are implicated.

In the fourth occurrence, it now appears that a widespread ECHO-9 syndrome existed within an area experiencing a usual occurrence of polio.

Study of these experiences is being completed as rapidly as laboratory data become available. Up to the present, final diagnosis has been changed for eleven cases originally reported as suspected polio.

Surveillance: Nationally, there is a continuing effort to delineate other factors clouding the polio picture. Among these are not only other agents than polio virus, but also the changing pattern of age at onset, extent of paralysis by agent and the impact of vaccination. Mississippi participates fully in this effort and preliminary data are enlightening.

[†] Director of Preventive Disease Control, Mississippi State Board of Health, Jackson, Miss.

It is clearly apparent that the age-attack rate has shifted from the 5-9 age group, which has been highest, to the pre-school (0-4) age group. At the same time, there is a disproportionate increase in paralysis and severity of paralysis in the lower age group. (Table 1)

TABLE 1. CLINICAL STATUS OF POLIO CASES 60 DAYS AFTER ONSET, BY SELECTED AGE GROUPS, MISSISSIPPI, 1958

Age		*Disability*	*Significant*
Groups	*All Cases*	*Paralytic*	*Or Severe*
0-4	37 (31.6%)	21 (51.2%)	15 (48.3%)
0-9	63 (53.8%)	29 (70.7%)	22 (71.0%)
0-19	95 (81.2%)	33 (80.5%)	25 (80.6%)
TOTAL (All ages)	117 (100.0%)	41 (100.0%)	31 (100.0%)

It seems apparent that, if polio vaccine is effective and is being given to significantly large numbers of the population, the percentage shift to the pre-school group according to both total cases and severity of paralysis reflects the relatively low level of immunization in this age group. The relative increase in number of cases in the over twenty age group, reflected also in the national trend, may also be attributable to the changing status of induced immunity of the population.

Vaccination: Analysis of the immunization status of the population in the state is complicated by the known shift in base population and lack of adequate estimates of vaccine usage by age groups and number of doses for other than health department clinics. Nevertheless, it is apparent from a review of health department activity alone that a significant level of protection has been conferred to the population group 0-19 years of age. Health department vaccination programs are limited to these age groups and antepartum patients. Since the level of protection given by three doses of vaccine still remains adequately high, total vaccinations are used. (Table 2)

TABLE 2. POLIO VACCINATION STATUS OF SELECTED AGE GROUPS, 1950 CENSUS, ACCORDING TO DOSES GIVEN BY HEALTH DEPARTMENTS, MISSISSIPPI, 1954-1958

	Age Groups			
Number Doses	0-4	5-9	10-19	*Totals*
1	234,972	310,711	260,592	806,275
2	196,802	261,745	237,868	696,415
3	128,640	190,851	208,528	528,019
Population	283,349	239,069	412,531	934,949

It is apparent that the total number started on the immunization series is large and represents a creditable performance. Yet, it is evident that the deficit in number beginning vaccine is considerable. The number who have started but not completed the series is much greater and demands continuing effort.

In addition, approximately 12,000 antepartum patients are immunized at health department clinics annually. An average of 18,000 infants receive the basic series of two doses. It is obvious that less than one-third of the annual birth increment is reached with polio vaccine during the first year of life. Further, the continued high usage of vaccine in the 5-9 age group indicates that large numbers of the pre-school age group are entering school without having had the protection of polio vaccine during the high risk years. Since immunization in no way interferes with the natural dissemination of poliovirus, the steadily increasing number of cases in the 0-4 age group indicates that this group is both at greatest risk and least protected through immunization.

There can be no reasonable question of a high order of vaccine effectiveness. The duration of vaccine effectiveness after three adequately spaced doses is also evident. From the experience during 1958 it is apparent that vaccination protection is of the order predicted. There is indication also that severity of disability is modified in vaccinated cases. (Table 3)

No. Doses	*Complete Recovery*	*Minor*	*Significant*	*Severe*	*Died*	*Unknown*	*Total*
0	20	7	8	14	—	3	52
1	3	—	—	—	—	—	3
2	4	—	2	2	—	1	9
3	44	2	3	1	1	1	52
Unknown	—	—	—	—	1	—	1
Total	71	9	13	18	1	5	117

Surveys: In recent months a number of surveys in various parts of the country have been undertaken in an effort to assess both the level of immunization of various segments of the population and the reasons behind lack of immunization. In large measure, reasons given for neglecting immunization parallel findings in a small Mississippi survey conducted in 1957 and confirmed by special personnel engaged in stimulating attendance at special immunization clinics.

One of the leading reasons for failing to secure immunization is a lack of motivation, or apathy. Fear as to the safety of vaccination has been less often an expressed reason, though resistance to immunization of infants has been found. A large and apparent factor in the Mississippi study was the failure of parents to enumerate family members aged 15-19 as among those needing immunization. The non-immunized in this group were found to have been left to decide for themselves the need for immunization.

Summary and Conclusions: It is evident that the pattern of polio occurrence is changing. While there may be more polio reported in 1958 than in 1957, there is not yet enough available data to predict the cyclic occurrence of the disease. Since natural virus dissemination and infection is not influenced by the vaccine, cyclic recurrences of infection by type of virus may be anticipated. However, the total number of clinical cases and, particularly, paralytic cases must decline over a suitable time period in a given area if the population is protected by an effective vaccine. If the vaccine is effective, the number of cases in the non-vaccinated group must significantly exceed those occurring in the vaccinated group. However, since vaccines are not 100 per cent effective, as the total population vaccinated approaches 100 per cent there will be a relative increase in number of cases occurring in the vaccinated group. It is essential, therefore, to measure degree of protection as well as to elucidate the role and effect of other agents which may cause the polio syndrome. The 1958 polio experience in Mississippi, on the basis of preliminary data, indicates that this or some such co-ordinated hypothesis explains the changing pattern of occurrence of polio.

The total susceptible population between 0-19 years of age started on vaccine is high. Examination of Table 2 shows clearly the difficulty of case holding to complete the series even with aggressive and positive techniques. Since health department clinics have not offered vaccine to those over twenty, it seems entirely likely that the percentage of those 20-40 who started vaccination is significantly less than in the 0-19 group. At the same time, it is probable that the percentage of those 20-40 completing the series is higher.

Nevertheless, Table 3 shows clearly that almost half the reported cases had received no vaccine while accounting for four times as many disabilities as the triply vaccinated cases. It is imperative, therefore, that physicians continue to provide the medical leadership necessary to reach the susceptible population. In particular, every effort should be made to immunize infants and this should be extended to the entire family wherever possible.

Since vaccine is not generally available in health departments for those twenty and over, the burden of mass protection of this group rests largely with the individual effort expended by physicians. The relative increase in cases in this group indicates the potential value of this approach.

Participation in planning and conducting local immunization programs is commendable and worthy of extension.

Finally, the exhaustive effort being expended by private physicians to secure adequate laboratory specimens is essential to the continued development of knowledge concerning those agents capable of causing a polio syndrome. It is urged that specimens be secured and submitted for study in all cases, however mild, exhibiting a polio, encephalitic or aseptic meningitis syndrome.

COMMUNITY RESOURCES FOR REHABILITATING THE ALCOHOLIC

The Mississippi State Board of Health and the University of Mississippi (through the Department of Conferences and Institutes) conducted a conference on Community Resources for Rehabilitating the Alcoholic, April 8-10, 1959, at the University. The Conference was made possible by a grant from the National Institute of Mental Health. State, voluntary, and private agencies joined in a discussion of the uses of community resources through approximately eight delegates from twelve agencies and selected individuals and groups.

The purpose of the Conference was to focus attention upon 31,000 Mississippians who have the disease—alcoholism—by learning:

1) What Others Are Doing
2) What Mississippi Is Doing
3) Some Recommendations to Mississippi

Dr. Marvin A. Block of Buffalo, New York, well-known in the field of alcoholism and currently chairman of the American Medical Association's Committee on Alcoholism, stated that alcoholism is a socio-medical problem. It has no single facet but is many-sided: psychological, medical, economic, and sociological. There is more alcoholism than cancer, tuberculosis, and poliomyelitis combined but it does not arouse the emotional response that these diseases do.

The alcoholic, according to Doctor Block, is not only a sick person but has a communicable disease in the sense that his environment makes transmission possible. It is not a germ disease but it is well known that a child living in a family where circumstances are conducive to poor mental health is exposed to a certain amount of hazard.

Alcoholism is communicable to the extent that alcoholic parents may have alcoholic children because of poor mental health surroundings. In the United States today there are estimated to be 4 to 5 million people who are alcoholics.

In discussing the disease further, Doctor Block pointed out that alcoholism is not a uniform disease and one may find different circumstances surrounding each alcoholic. *There is no routine treatment for alcoholism, according to Doctor Block. Each treatment must be tailor-made.* There are many variable symptoms and conditions that are associated with the disease. By and large, many emotionally unstable, poorly adjusted people use alcohol as an escape. Alcoholics are not feeble-minded individuals—they usually have a great deal of talent and ingenuity and are no different from the total population.

The problem drinker, according to Doctor Block, is one who ingests alcohol intermittently or consistently—to the extent of creating a problem. In determining alcoholism, the following questions may be asked:

1. Do you drink alone?
2. Do you feel the need for drinking at a certain time of the day?
3. Do you go on drinking sprees?
4. Do you lose time from your job?
5. Do you have "blackouts"?
6. Do you drink first thing in the morning?

Alcoholism is one of the most prevalent diseases—and the alcoholic suffers far more than most people think . . . many feel that no one can understand them except those who have been through this experience. Treatment, Doctor Block believes, must be sympathetic and empathetic.

A chart of progress by the American Medical Association was given and showed that since 1954 the AMA has had a Committee on Alcoholism and definite emphasis is given to the problem.

In the field of hospitalization, Doctor Block called attention to the fact that alcoholics in a general medical ward behave better, respond better, and are more cooperative than when isolated . . . that is, when treated in the same way at the same time as general medical cases, they do better. In Western New York, statistics have shown that the average medical hospital stay for all diseases is 6 days and the average medical hospital stay for alcoholics is 5½ days.

In closing, Doctor Block pointed out that since 1957, the Mental Health Council of the American Medical Association has been authorized to hold as many as three Institutes on Alcoholism a year.

Dr. Selden Bacon, director, Summer School of Alcohol Studies, Yale University, New Haven, Connecticut, and professor of sociology, gave information relating to the alcoholic and the problem of alcoholism in the United States today.

The following chart developed from studies by Jellinek was used to describe behavioral deviations frequently manifested by many American alcoholics; the order of appearance is suggestive, not absolute.

PRE-ALCOHOLIC SYMPTOMS

1. Gross drinking behavior
2. Blackouts
3. Gulping and sneaking drinks
4. Hangover

ALCOHOLISM

Early Stages

5. Loss of control
6. Alibi system
7. Eye opener
8. Changing pattern
9. Anti-social behavior solitary drinking
10. Loss of friends — jobs
11. Medical aid

Later Stages

12. Benders
13. Tremor — shakes
14. Protecting supply
15. Unreasonable resentments
16. Nameless fears, anxieties
17. Collapse of alibi system (admission to self that drinking is beyond control)
18. Surrender process

The alcoholic's hangover was distinguished from that experienced by other drinkers in two ways: (1) for the alcoholic the emotional component (guilt, remorse, inferiority feelings and all sorts of anxiety) is far more important than the sensations of physical illness, vice versa for other users; (2) for the alcoholic there develops a feeling of implacable fate, driving him to hangovers no matter how he hates or tries to avoid them.

The full course of the cycle (from the somewhat regular appearance of at least three of the pre-alcoholic symptoms to complete social and psychological collapse) may take from 5 to 15 years. If the individual starts deviant drinking between 25 and 35 years of age, a longer period of development is more likely but if started after 35, a shorter time; as a result, the later stages emerge with great frequency during the early and middle forties. Young adults with marked emotional disturbances and many women go through the cycle quite rapidly.

The prevalence of alcoholism varies considerably from country to country; the rate is high in France and the United States, low in Italy. It varies among ethnic groups in the United States; the rate is very low among Jews and Italian-Americans, high among Irish-Americans and fourth and more generation white Americans. American men alcoholics outnumber the women 5 to 1. Aside from age, sex and cultural orientation, however, alcoholics seem to be found without great difference in all segments of the population whether measured by wealth, marital status, occupation, location, degree of education, family background; naturally, they tend to move toward cities and their social adjustments deteriorate.

The chart was indicated to be misleading in some aspects since it suggests that all alcoholics are the same and that there is but one condition called alcoholism. Each alcoholic is a unique person. Furthermore, there are many types of alcoholism; the deeply neurotic alcoholic, several Skid Row types, the heavy drinker whose relevant psychological problems stem largely from his drinking behavior, the psychopath whose abnormal drinking behavior masks a far more serious condition, the heavy drinking individual whose I.Q. is below 70, all represent very different conditions, although the manifest end result makes them appear so similar.

Factors bringing on alcoholism were listed as follows: (1) the pharmacologic action of alcohol; (2) very probable but still only an assumption, some physiologic differences making the person more susceptible; (3) psychologic problems which the individual cannot resolve in socially acceptable fashion; (4) a weak, confused or conflicting set of drinking habits and attitudes; and (5) coming into play as the alcoholism starts, a set of attitudes and behavior which mislabels, denies, hides, ridicules or physically punishes the condition or person, thus allowing the "cover-up" and slow development toward final stages, and also thus blocking effective education, research, therapy and prevention.

Dr. Vernelle Fox of Atlanta, Georgia, described her work with the Georgia Commission on Alcoholism as medical director of the Georgian Clinic—an in-patient and out-patient institution.

Doctor Fox stated that patients who are acutely ill or inebriated are not taken (are taken later). Use is made of community resources and it was pointed out that one cannot sit and wait for previously established structure. The clinic has operated for five years. Doctor Fox's strong point was the one-to-one plan of education.

Other program participants included Dr. James Osberg of the Public Health Service's Regional Office in Atlanta, Georgia, and representatives of Mississippi agencies who participated in a symposium on What Mississippi Is Doing.

Presiding at the session were: Mrs. Vashti I. Cain, supervisor, Narcotics Education, State Department of Education, Dr. D. S. Pankratz, dean of the School of Medicine, director of the Medical Center, Dr. A. L. Gray, executive officer, Mississippi State Board of Health, and Dr. George Maddox, professor of sociology, Millsaps College, all of Jackson.

Certificates were awarded by the Department of Conferences and Institutes, University Extension, to all of those in attendance.

HICKMAN—*Cobalt-60 Teletherapy*

(continued from page 39)

Medicine, 1958, 79: 57-63.

9. O'Brien, Frederick W., Jr., and O'Brien, Frederick W.: Irradiation and surgery in the management of invasive carcinoma of the cervix. *Radiology,* 1956, 67, 1-9.
10. Simon, Norman and Silverstone, Sidney M.: The advantages and limitations of Cobalt-60 hecto-*Roentgenology, Radium Therapy and Nuclear Medicine,* 1959, 81, 38-42.
11. Smith, Ivan H., and Lott, J. S.: Some observations on the effects of Cobalt-60 beam therapy on epidermoid carcinoma during the first five-year study period. *The American Journal of Roentgenology, Radium Therapy and Nuclear* curie teletherapy. *The American Journal of Medicine,* 1958, 79: 406-414.

NO SMOKING

New York City's health commissioner, Dr. Leona Baumgartner, has asked the city's public schools to discourage teenagers from smoking. Request was made as a result of reports linking cigarets and lung cancer. Dr. Baumgartner said MDs should take lead in persuading youngsters not to smoke.

Medical School Miscellany

"If production of trained medical personnel in all categories should remain at the present rate there will, by 1970, be a shortage of several thousand physicians and more thousands of related medical researchers, together with shortages of nurses, technicians and ancillary personnel," Dr. Stanhope Bayne-Jones declared at the Medical Center Commencement exercises in Jackson, June 7.

Basing his prediction on a calculated increase in the national population and an anticipated increase in medical research expenditures, Dr. Bayne-Jones called for immediate efforts to enlarge enrollments in all the health sciences.

The winner of the 1959 Passano Award which he accepted during the American Medical Association conference only two days after his address to graduates of the University of Mississippi at the Medical Center, Dr. Bayne-Jones was chairman of HEW Secretary Folsom's Consultants on Medical Research and Education, authors of the 1958 "Bayne-Jones Report."

In all of the 85 medical schools in the United States, Dr. Bayne-Jones said, 29,437 students were enrolled and 6,861 graduated in 1958. This, he averred, is not enough to maintain the present ratio of physicians to people in this country.

"We are now in the midst of a scientific and technological revolution that will touch every aspect of human life and human activity," he went on. "Medical research, like other areas of science, will become broader in dimension and more penetrating in depth," he stated, stressing that medical education and medical research are inherently inseparable in an institution of higher education.

Candidly facing up to the staggering costs of the proposed expanded medical education and research programs, Dr. Bayne-Jones confided that he "cannot foresee sufficient funds from private sources."

Urging private sources and industry to increase the money they are already making available for medical education, Dr. Bayne-Jones classified medical education as an urgent public need. "I believe," he said, "that the necessary funds will be supplied by government—municipal, state and federal."

S. D., University of Cincinnati.

Citing current federal support for medical research and research facilities, Dr. Bayne-Jones conceded that "the federal government is subsidizing higher education," without, as yet, "objectionable federal interference with teachers, students, investigators or institutions."

Dr. Bayne-Jones spoke to a capacity audience in the First Baptist Church where the last two UMC commencements have been held because the Medical Center has no auditorium.

A total of 85 graduates from three schools received their degrees in the colorful ceremony which marked the first graduate degrees to be given in the Jackson campus exercises, the first commencement since the School of Nursing achieved accredited, school status and the first medical school class to have received all four years of schooling at the Medical Center.

New Interns

Six of the Ole Miss medical school June graduates will remain as interns at the University Hospital. Eleven of the 23 interns for 1959-1960 are Mississippians, including one who took his basic science training at the Medical Center before graduating from Harvard.

According to Dr. David B. Wilson, hospital director, the new interns are: William E. Bowlus of Greenwood; Louis A. Farber of Cordell, Okla.; Norris C. Knight, Jr., of Jackson; Ray Pate, Jr., of Isola; Charles E. Sledge of Sunflower and Eugene G. Wood, Jr., of Moss Point, all University of Mississippi graduates; Daniel H. Moore, Jr., of Meridian, Harvard; Thomas R. Arlander of St. Paul and Carl G. Evers of Lake Benton, Minn., both University of Minnesota.

Frank M. Cauthen, Jr., of Birmingham; Allen U. Hollis of Sulligent, Ala.; Bobby P. LeMay of Town Creek, Ala.; Thomas E. Stevens of Birmingham, James A. Walker of Huntsville, Ala., all of University of Alabama.

Clyde Copeland, Jr., of Jackson; John E. Green of Hattiesburg, Reginald S. Lowe, Jr., of Winona; Graham B. Shaw of Indianola, all of Tulane; Jack P. Evans of Montgomery, Ala., Vanderbilt; Barry M. Green of St. Joseph, Mo., Baylor; Cosmo L. Haun of Niota, Tenn., University of Tennessee; Dudley C. Miller of Columbia, Mo., University of Missouri; and David R. Studenberg of Gregory,

INTERPRETING MEDICAL LITERATURE

STAFF OF REVIEW

JOSEPH P. MELVIN, Jr., M.D.	Cardiology
Harvey F. Garrison, Jr., M.D.	Pediatrics
JAMES D. HARDY, M.D., and STAFF, Department of Surgery,	

CARDIOLOGY

VASOPRESSOR THERAPY IN THE CARDIAC ARRHYTHMIAS

By Herbert Gold, M.D., and Eliot Corday, M.D., University of California at Los Angeles School of Medicine, Los Angeles, California.

In the past ten years, many investigators have shown that the administration of vasopressor drugs may terminate paroxysmal cardiac arrhythmias rapidly. It is only recently, however, that the physiologic mechanism of this effect has become clear. Clinicians have long recognized that anginal pain occurs during rapid tachycardias and electrocardiograms frequently show the changes typical of coronary insufficiency during and following a prolonged paroxysmal tachycardia. It seems to be reduction in systemic and coronary artery blood obvious that these tachycardias cause a marked pressures and this decrease has been shown in experimental studies with dogs in which the coronary flow in animals was reduced as much as 45 per cent in rapid supraventricular tachycardias and 60 per cent in ventricular tachycardias. Other experimental studies have shown that the coronary flow is improved when the blood pressure is restored, even though the arrhythmia may continue. These investigators have noted that these vasopressor drugs are effective by acting directly upon the myocardium. It is possible that restoration of the blood pressure increased the coronary circulation so that it either washed out irritating arrhythmogenic metabolites, or improved the nutrition of the myocardium and interrupted the arrhythmia. They have successfully terminated supraventricular and ventricular tachycardias, atrial fibrillation, complete AV heart block, Wenckebach's phenomena, marked sinus bradycardia and frequent premature ventricular systoles in the human being with vasopressor drugs, consider it safe, and, in many cases where the arrhythmia was not terminated by the vasopressor, the blood pressure was sustained and the coronary flow aided and abetted until other antiarrhythmic agents were successful several hours later. The vasopressor agent used was Nor-epinepherine (Levophed) given at a dosage level of 4 ccs. per liter of 5 per cent glucose and water at a rate of 20 drops per minute. They consider it the safest vasopressor material because its effect can be promptly stopped, that is, by discontinuing the infusion, in contradistinction to drugs given by intramuscular injection with a longer physiologic action.

COMMENT: I have used Vasoxyl and Ephedrine several times to terminate arrhythmias and they seem to work promptly and effectively. They have the advantage of not producing tissue necrosis and the disadvantage of one's not being able to terminate their longer physiologic action. Vasopressors can be used as the sole therapeutic agent or in conjunction with other known antiarrhythmic agents.

Fifty-Year Biographica

PERRY REAVES WASSON

Perry Reaves Wasson, son of Dr. J. A. and Mary Reaves Wasson, was born in Ethel on January 2, 1886.

He attended school in Attala County and received his medical degree from the University of Tennessee in 1908, and only recently received his fifty-year pin and certificate from the University of Tennessee. After graduation, he practiced in Ethel and has been in Lyon since 1937.

The Lyon Methodist Church recently gave to Doctor Wasson a certificate of recognition. He is a member of the American Medical Association, Mississippi State Medical Association, Clarksdale and Six Counties Medical Society, and Coahoma County Medical Society.

For many years Doctor Wasson has served his fellowman faithfully and well, and on June 15 was honored with lifetime membership in the Fifty-Year Club of the State Medical Association.

THE MISSISSIPPI DOCTOR

The journal with a vision which encourages a plan of delivering modern medicine to the masses at less cost to the individual and more profit to the practitioner. It champions the community hospital, the hub around which this service must be built.

Entered as second-class matter, January 19, 1926, at the post office at Booneville, Miss., under the Act of March 3, 1870. Annual subscription, $3.00.

W. H. ANDERSON, M.D. .... Editor-in-Chief
MILDRED P. ANDERSON .... Assistant Editor

MID-SOUTH POSTGRADUATE MEDICAL ASSEMBLY

W. G. Stephenson, M.D. .... President
Chattanooga, Tenn.
Omar Simmons, M.D. .... President-elect
Newton, Miss.
David E. Stewart, M.D. .... Vice-President
Brownsville, Tenn.
L. B. Otken, M.D. .... Vice-President
Greenwood, Miss.
C. G. Swingle, M.D. .... Vice-President
Marked Tree, Ark.
Thurman Crawford, M.D. .... Secretary-Treasurer
Memphis, Tenn.

Mid-South Associate Editors
H. King Wade, M.D. .... Hot Springs, Ark.
Frank M. Acree, M.D. .... Greenville, Miss.
R. L. Sanders, M.D. .... Memphis, Tenn.

MISSISSIPPI STATE MEDICAL ASSOCIATION

Stanley A. Hill, M.D. .... Corinth
President
G. Swink Hicks, M.D. .... Natchez
President-elect
Wm. E. Lotterhos, M.D. .... Jackson
Secretary
Rowland B. Kennedy .... Jackson
Executive Secretary
Wm. M. Dabney, M.D. .... Crystal Springs
Louis F. Rittelmeyer, M.D. .... Jackson
State Associate Editors

The Publication Committee is not responsible for the authenticity of opinion or statements made by authors or in communications submitted to this journal for publication. The author or communicant shall be held entirely responsible.

Address all material for publication to W. H. Anderson, M.D., 30 West Church Street, Booneville, Mississippi.

THE PROFESSION LOOKS AT A COMMUNITY PROBLEM IN PREVENTION

Within the months ahead communities, states and agencies will be preparing the reports that will be made to the 1960 White House Conference—with emphasis on how our changing world is affecting children.

What of Delinquency?

Says Dr. McGuinness of the Department of Health, Education, and Welfare, "Many American children grow up in a rough world. They come from homes broken by desertion, divorce, or separation, or are children of unwed mothers. There are more than two million of these children."

From this number come many of our disturbed children, those in conflict with the law, those of our so-called shook-up generation. The delinquency cases handled by the juvenile courts increased by 137 per cent between 1948 and 1957, with only a 28 per cent increase in our child population from ten to seventeen years of age.

New Proposal

A new proposal, for the use and implementation by state legislatures, provides a family court that can safeguard parents and children in need of legal counsel. Specifically prohibited would be the transfer of a delinquent child to an institution for adult criminals; placement of a neglected child in an institution for delinquents; and subjecting a child to criminal court penalties and juvenile court control for the same offense.

How to Prevent

We are sure that prevention will be the central objective on all phases of interest in the question of juvenile delinquency. Toward this end we are 1) to show more concern for the fitness of our youth; 2) to adopt new methods for attaining fitness; 3) and to encourage promotion of fitness by all services—physical, mental, moral, spiritual.

Southern Breakdown Highest

From a recent analysis of 25 cities, half of them showed the rate of social breakdown to be 67 families per 1,000. Eastern and northern cities showed between 29.4 and 78.3 families per 1,000. Southern cities had a uniformly higher rate.

Counseling and Guidance

Many of these families are known to social agencies, teachers, the church, doctors, and to the police. To help a family get on its feet emotionally and financially seems to be the chief immediate preventive measure. Then a system of testing the child's natural bent, plus adequate counseling and guidance, for a long-range prevention. When a child's special talents are identified when he is young, and when he is encouraged to pursue these talents and make the most of himself, he will be less likely to become the member of a street gang. School counselors can recognize the potentially delinquent child in time to solicit community resources that can keep him out of trouble.

Mental Health Doing Most

An all-time high of $54,000,000 was provided by a tremendous expansion of community mental health programs the past year. Only 7.4 per cent of this was federal money—the great major portion of it coming from state and local resources.

Start Now!

But for those children who are delinquent, or likely to become so, avers Dr. McGuinness, "We have an obligation to do what we can, when and where we can, and to start doing it now!"

Of the world's 2½ billion people, our nation of 175 million has managed to own almost half of the world's wealth. "Surely, amidst our plenty, we can find the resources of time, energy, money, and creative thinking to help these thousands of boys and girls whom society has failed and whom we have tagged 'delinquent'."

THE RISING COST OF ILLNESS

Public Too Critical

The rising cost of illness is the limelight subject for lay as well as professional discussion just now. Whether or not medical care costs are too great, they are taking a beating from the public beyond what is warranted.

The rapid march of medicine has been miraculous. The cost of research has been tremendous to enable most of this progress. On the other hand, an inflationary economy has put labor, all goods, and food at an all-time high. The cost of today's medicine and hospitalization offset much of their expense. When we compare a two-day average stay in the hospital for pneumonia against ten days a few years ago, the savings are stupendous, even to greatly effecting the length of the life span. Let us consider the time and the lives that have been saved by the control of malaria, diphtheria, polio, and typhoid, and many other onetime killers. The prevention of disease has been inestimable. Yet with all the progress and all our benefits we would not say that the cost of illness can not be reduced. To do this, the lay public, the medical and nursing professions, the hospital, and the manufacturer of drugs must come together, analyze costs, and study them with a willingness to forego some profit and leisure.

Patient Demands Equally High

As long as the patient demands the best in medical service, regardless of cost, and exploits insurance protection, little relief can be expected in insurance rates. The stay in the hospital might be reduced still more. A registered nurse may be desirable but not imperative. Often a member of the family can render adequate and a saving service. There is a wide margin between the real necessities of illness and what the average person demands. We believe that the patient can be educated to a helping attitude in reducing the cost of his illness.

NORTHEAST MISSISSIPPI SOCIETY

At the June meeting of the Northeast Mississippi Medical Society in Tupelo, Dr. Bernard Patrick of Memphis was the guest speaker. Formerly of Corinth, the son of a doctor and the grandson of Dr. W. H. Sutherland of Booneville, his practice is now limited to neurological surgery. His discussion of strokes, their treatment and prevention, was instructively and interestinly presented.

Fifty-Year Awards

A fifty-year certificate and pin were presented to Dr. B. C. Tubb. Dr. and Mrs. Tubb live at Smithville, near Amory, where they have done a wonderful work for the community. Although Dr. Tubb has fifty years of active practice behind him, he is yet very active and looks to the future. Mrs. Tubb has been his able and constant inspiration.

The September meeting will be held in Corinth to pay honor to Dr. Stanley Hill, president of the Mississippi State Medical Association.

On June 28 another doctor of the Northeast Mississippi Medical Society had his fifty-year celebration. Dr. and Mrs. E. K. Guinn of Okolona shared the program and ovation of a throng of friends gathered at the Methodist church. Dr. Guinn has practiced for fifty years in the county in which he was born, and unlike some, he is a doctor full of honor in his hometown. Following the precepts of the Sermon on the Mount, Dr. Guinn has spent his life building spiritual and mental assets along with the physical.

Dr. Guinn's certificate and pin were delivered by Dr. Anderson, who helped the late Dr. W. A. Evans to organize the Fifty-Year Club in 1948, and has served as sponsor since its beginning.

AMORY BREAKS GROUND FOR HOSPITAL

On July 1 ground-breaking ceremonies were witnessed at Amory for a new hospital for this fine little city. It is surrounded by a good farming and timber-growing area. It also has been a gas-producing center for several years, and we venture that oil will eventually flow as freely as the gas.

Amory lay leaders present included Mr. Bourland, Mr. Harrison, Mr. Gilmore, the daughters of the late Dr. G. S. Bryan, and others. Mr. Joe Ware represented the Jackson firm of Overstreet, Ware and Ware, architects, and Mr. Foster Fowler, the Commission on Hospital Care.

This hospital adds another service facility to Mississippi's commanding total. The 1958 report shows that we had 136 hospitals with 6864 beds, their value estimated at more than $75,000,000. Our University Medical Center was constructed at a cost of $9,500,000. All of this gives our state one of the best systems of hospital service in the nation.

PRESIDENT EISENHOWER ADDRESSES AMA

For the first time in the 112 years of its existence, the American Medical Association was honored at its annual meeting by the participation of the President of the United States on its program.

President Eisenhower stated that the medical profession is steadily promoting better health among our people, whether it involves healing the sick, guarding the public against quackery, evaluating drugs, or helping to maintain high hospital standards. He reviewed the outstanding advances in the control and treatment of various diseases and noted the important part taken in them by the nursing profession and the hospitals. These advances, he said, are an inevitable reflection of American life. Better food, better sanitation, higher housing standards, better water supplies, and vastly extended education are factors that underscore the intimate link between an expanding economy and high standards of medical and health care. However, as our bodies must be vigorous, so must our economy. The President likened the relationship between a balanced diet and a balanced budget. Habitual violation of the requirements of a proper diet can lead to ruined health; deliberately to unbalance the federal budget in time of huge indebtedness and rapidly increasing prosperity can bring about an enfeebled economy. The choice is ours, he said, and we must act with clear mind and resolution in either case. The medical profession, which has a vital interest in preventing inflation, certainly wants to provide its services for a fee within range of what people can reasonably pay. The President said that, if the time ever comes when large numbers of our citizens turn primarily to the government for assistance in what ought to remain a private arrangement between doctor and patient, then we shall all have suffered a great loss.

But progress in medical science brings forth in itself new problems. The President then referred to the increasing number of our people 65 years of age or over who live largely on fixed retirement income represented in pensions, insurance policies, and savings. Inflation to this large group takes bread out of their mouths, clothes off their backs, and limits their access to medical care. The President was gratified to learn that the American Medical Association has embarked on an all-inclusive program to re-orient our thinking about the place of older citizens in our modern society and to help them meet their health care needs.

As civilization expands, many other challenges to medicine and to society arise. We are constantly called on, the President pointed out, for new assessment of our environment, imagination, and effort to force and prevent or to recognize and conquer these changes, among which are the problem of the neuroses, the rising curve of highway deaths and injuries, and new health hazards in the form of occupational diseases. Progress must lead also to the mastery not only of the newer threats to health but of such age-old scourges as cancer and diseases of the heart and mind and of the central nervous system.

In closing, President Eisenhower said that peace and ennoblement of the human spirit are the common aims of free societies and that we shall one day establish a world community of peace-loving nations. In bringing about this happy result, he said, no one can or will de more than the doctors of medicine. —*J.A.M.A.*

THE NEW STATE PRESIDENT

The new president of the Mississippi State Medical Association is the son of Dr. Jim Hill and the late Mrs. Hill of Corinth, their only son.

Dr. Hill is blessed with distinction on all sides. His attractive and accomplished wife has served as president of the Auxiliary to the State Medical Association, and she was elected president of the Auxiliary to the Southern Medical Association, but was prevented from serving due to the advent of their little son Jimmy. Dr. Stanley Hill's father served as president of the State Medical Association in 1935-36. He also represented his end of the state for two terms in the state legislature. He has been consistently prominent in organized medicine and in state affairs.

Dr. Stanley Hill has attained honor in his own right. He has been president of his county medical society, the Northeast Mississippi Medical Society, and was for several years the able speaker of the house of delegates of the Mississippi State Medical Association. He has been a progressive leader in the march of medicine in our state.

Dr. Hill is active in the First Presbyterian Church of Corinth, is a past-president of the Kiwanis club, proving in these activities not only a medical integrity but also an outstanding Christian citizenship. He keeps informed on national medical affairs. A safe leadership is assured in our new state president.

"IT HAPPENED IN BOONEVILLE"

A few months ago the Mississippi Hospital and Medical Service, Blue Cross - Blue Shield, chose the Northeast Mississippi Hospital at Booneville for the filming of this hospital's story. It was the first hospital built under the Hill-Burton Plan.

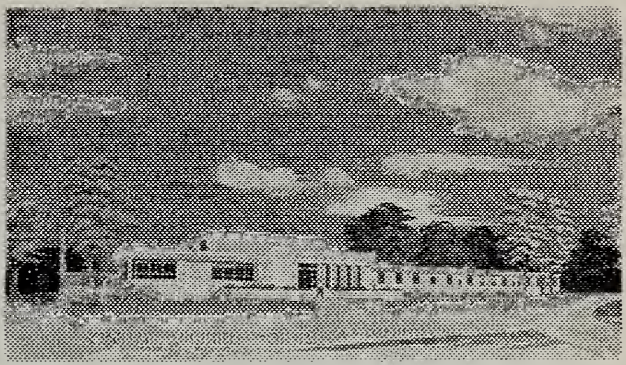
"It Happened in Booneville" is therefore the story of the establishment, growth, and development of the Booneville hospital, which was formally opened on December 14, 1949.

With the co-operation of the University of Mississippi's Department of Educational Film Production, of which Mr. Frank R. Paine is director, a technicolor movie of seventeen minutes' showing time was made for use in hospitals and for small groups. Said Mr. Richard C. Williams, executive director of the Mississippi Hospital and Medical Service, "We believe that the co-operative effort and vision depicted in this story will serve as an inspiration to other communities."

The première showing was given in Booneville on Tuesday evening, June 23, in the Northeast Mississippi Junior College auditorium.

The Northeast Mississippi Hospital opened under a corporation in 1919. A moderately adequate brick structure and furnishings served for three decades. However, a great amount of successful surgery was performed within its walls, and it managed to keep pace with modern medicine. The highest-priced room was three dollars per day, yet there was a balance of $50,000 which went into the new Hill-Burton hospital in 1949.

The national government put up two-thirds of the cost, the county and town, the remaining third. Three years ago a third wing added to the new plant brought its total bed capacity to more than eighty beds and its value to one million dollars. The hospital has been kept in prime condition, adjacent property has been purchased, a nurses' home built, and still the operating cost has been near the lowest of any Hill-Burton hospital in the state.



The new hospital is in its second year of a new nurses' training experiment—an affiliative effort between the local junior college and the hospital which permits training three-year graduate nurses. Twenty-seven young women are presently enrolled.

"It Happened in Booneville" depicts the vision, courage, and sacrifice of a community working together, now loyally supporting an institution of which it is justly proud.

AUTOS KILL; HOME ACCIDENTS INJURE MOST

The National Health Survey shows that of a twelve-month total of 47,000,000 million Americans who suffered injuries requiring medical aid, 27,000,000 were males.

Forty-one per cent were home accidents, ten per cent, motor vehicle, seventeen per cent, at work, and thirty-two per cent, other types of accidents.

Oddly enough, farm accidents showed the low-injury rate per 1,000, urban next, and rural nonfarm the highest rate.

There were 106 million days lost from work and 13 million days lost from school because of injuries.

NURSING HOME BILL GOES TO COMMITTEE

House Democrats beat down Republican economy moves and approved a multi-billion-dollar housing measure that contained a provision to spur construction of proprietary nursing homes.

The measure then went to a House-Senate conference committee to settle differences in measures approved by the two chambers. Both House and Senate bills contained the nursing home provisions, but there were some differences.

There was no dispute in either chamber over the nursing home program, backed by the AMA.

TENNESSEE VALLEY MEDICAL ASSEMBLY

The Tennessee Valley Medical Assembly will meet at the Read House in Chattanooga, Tennessee, on September 28 and 29, 1959.

All doctors of the mid-South area are cordially invited to participate in this excellent meeting.

DEATHS

DR. R. B. ZELLER

Services for Dr. Raymond B. Zeller, Hazlehurst physician, were held June 6. He died in his sleep on June 4.

Dr. Zeller established the Zeller Clinic in 1932, Having come to Hazlehurst from the Mississippi State Hospital at Whitfield where he was assistant director.

Dr. Zeller was a graduate of Jefferson Medical College of Philadelphia, Pa. His memberships include the American Academy of General Practice, American Medical Association, Tri-County Medical Society, and American Association of Railway Surgeons. He was for many years secretary-treasurer of the Tri-County Medical Society., he served on the council of the Mississippi State Medical Association and was consistently active in the organized medicine of his state.

Dr. Zeller leaves his wife and five daughters.

DR. G. C. RUSSELL

Rites were held June 10 for Dr. G. C. Russell, widely known physician and surgeon who died at the Robert E. Lee Hotel where he lived since his retirement last January due to ill health. He was 74.

A native of Johns, Dr. Russell attended the Memphis Hospital Medical School and was graduated from Tulane University Medical School. He did postgraduate work at Tulane, Washington University in St. Louis, and Mayo Clinic in Rochester, Minn.

He practiced medicine at Johns in Rankin County from 1909 until 1924, serving an eight-year term as Rankin County health officer. He maintained an office in D'Lo from 1923, moving to Jackson in 1930.

During World War II, Dr. Russell served as an officer in the U. S. Public Health Service. He was a member of the Jackson Chamber of Commerce, Galloway Memorial Methodist Church, Central Medical Society, Mississippi State Medical Association, Southern Medical Association, and American Medical Association.

DR. SAMUEL HICKMAN

Services were held on June 2for Dr. Samuel Hickman, former superintendent of the East Mississippi State Hospital at Meridian. He was 75 years of age.

Dr. Hickman was a native Mississippian, born in Noxapater. He received his medical education at the old Mississippi Medical College, Meridian, graduating in 1911. He located first in Winston County, practiced a year in Philadelphia, seven years in Jackson, and in 1939 went to Meridian to become superintendent of the state hospital there.

Dr. Hickman retired last year, but maintained a private practice. He leaves his wife and a daughter.

DR. W. C. HAYS

Dr. W. C. Hays, 77, Sherman physician since 1929, died May 16 at a New Albany hospital following an illness of only two days.

HER concepts of cleansing have changed...

Today she would prefer

TRICHOTINE®

for her most personal cleansing

THE FESLER COMPANY, INC. • 375 Fairfield Ave., Stamford, Conn.

A native of Lamar County, Alabama, he graduated from the University of Tennessee College of Medicine in 1912 and practiced at Caledonia and Blue Springs before going to Sherman.

Dr. Hays was a Methodist, a Mason, a Shriner, and a charter member of the Sherman Lodge. He received his fifty-year Masonic pin about two weeks before he died.

Surviving are his wife, Mrs. Auggie McDougal Hays; two sons, Dr. W. C. Hays of Marianna, Ark., and Dr. Freeman Hays of Fayetteville, Tenn.; two daughters, Mrs. Price Livingston of New Albany, and Mrs. L. D. North of Jackson; two brothers, Sidney Hays of Birmingham, and Brown Hays of Fernbank, Ala.; three sisters, Mrs. Lucian Stokes of Sulligent, Ala., Mrs. Clarence Thomas of Fernbank, and Mrs. Grover Hydrick of Ethelsville, Ala.; and nine grandchildren.

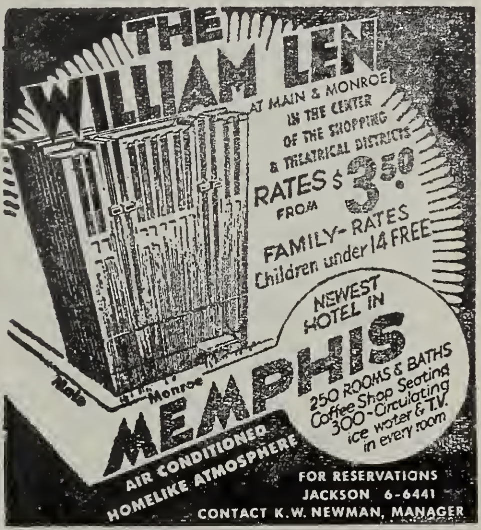
DR. JESSE L. ROARK

Dr. Jesse L. Roark, 63, died May 31 of cerebral hemorrhage at Veterans Hospital, Albuquerque, New Mexico. Born in Water Valley, Mississippi, the son of the late Mr. and Mrs. Frank M. Roark, he was educated in the public schools of Water Valley and at the University of Mississippi. He received his M. D. degree from Jefferson Medical College, Philadelphia, Pennsylvania, in 1924. He was resident pathologist of Jefferson Hospital for one year, after which he served on the teaching staffs of Jefferson Medical College, Department of Diseases of the Chest; Whitehaven Sanatorium for Tuberculosis, Whitehaven, Pennsylvania; Mississippi State Sanatorium for Tuberculosis; Pennsylvania State Sanatorium for Tuberculosis, South Mountain, Pa.; Essex County Sanatorium for Tuberculosis in New Jersey; and Arkansas State Sanatorium. He also practiced industrial medicine in West Virginia, was in general practice in New Jersey, and was medical director of Lafayette-Yalobusha County (Mississippi) Health Department.

He was a veteran of World War I and served overseas.

Interment was in Santa Fe, New Mexico.

Besides his wife, he leaves two sons, Jesse L. Roark, Jr., San Francisco, Cal., Richard L. Roark, Albuquerque, New Mexico; two daughters, Ann Roark of Oakland, Cal., Mary Kathleen Roark, Albuquerque, and one sister, Miss Bertha Roark, Water Valley, Miss.



THE WILLIAM LEN
AT MAIN & MONROE
IN THE CENTER
OF THE SHOPPING
& THEATRICAL DISTRICTS
RATES FROM $3.50
FAMILY-RATES
Children under 14 FREE
NEWEST HOTEL IN
MEMPHIS
250 ROOMS & BATHS
Coffee Shop Seating
300-Circulating
ice water & T.V.
in every room
AIR CONDITIONED
HOMELIKE ATMOSPHERE
FOR RESERVATIONS
JACKSON 6-6441
CONTACT K.W. NEWMAN, MANAGER

YOUR concepts of cleansing have changed...

Detergents are the modern, efficient way of cleansing. They provide greater surface activity and assure effective penetration.

Trichotine is the modern detergent vaginal douche. Unlike vinegar or low pH douches, Trichotine cuts through viscid leukorrheal discharge and allows complete penetration of its healing and soothing ingredients. Trichotine is bactericidal and promotes epithelization. It offers quick relief from pruritus, and its refreshing, soothing action is reassuring even to your most fastidious patients.

in vaginitis—vulvovaginitis—
cervicitis—pruritus vulvae—
postcoital and postmenstrual
hygienic irrigation

TRICHOTINE®

write for samples and literature to **THE FESLER COMPANY, INC.** • 375 Fairfield Ave., Stamford, Conn.

MISSISSIPPI *General Discount Corporation*

invites

. . . the physicians and dentists of Mississippi to avail themselves of the benefits of its professional credit - loan plan.

Designed with the doctor and patient in mind it provides a dignified credit plan to ease the burden of major medical and dental expenses — assuring the doctor prompt payment for his professional services and providing a budget payment plan for the patient.

Confidential details of the plan are available from the manager of any of our branch offices, operating as:

SOUTHERN LOAN CORPORATION

MART - 51
JACKSON

DELTA MART
JACKSON

130 S. FARISH STREET
JACKSON

MERIDIAN
2209 8TH ST.

ABERDEEN
BIG STAR BLDG.

AMORY
NORTH MAIN ST.

Other offices will be opened throughout Mississippi in 1959. This is a Mississippi enterprise — owned by Mississippians — operated by Mississippians.

PARENT COMPANY

Mississippi General Discount Corporation

130 SOUTH FARISH STREET, JACKSON, MISS.
PHONE — FL 2-1602 or FL 3-5111

CIRCULATES AFTER SEP 21 1959

The MISSISSIPPI Doctor

M.S.M.A.

37 THE MISSISSIPPI DOCTOR, AUGUST, 1959 N

> He ate and drank the precious words; his spirit grew robust. He knew no more that he was poor nor that his frame was dust. He danced along the dingy days and this bequest of wings was but a bo [illegible]
>
> —Emily Dickinson

Library, Univ.
Med., S. F.
and Green

In This Issue

ANTIBIOTIC COMBINATION THERAPY IN ACUTE AND CHRONIC URINARY INFECTIONS
John F. Lally, M.D.

THE MANAGEMENT OF URINARY CALCULI IN GENERAL PRACTICE
Gordon L. Mathes. M.D. and Raymond F. Mayer, M.D.

LARGE COLLOID GOITERS WITH SUBSTERNAL COMPONENTS
Diagnostic and Technical Problems in Management
James D. Hardy, M.D., F.A.C.S.

THE TROUBLESOME AND DANGEROUS DIARRHEAS
Wallace Marshall, M.D.

TENDON INJURIES
Daniel C. Riordan, M.D.

APPLIED ANATOMY FOR PTOSIS SURGERY
Frank Adair, M.D.

New wide-use dosage form

of the outstanding
anticholinergic-antispasmodic

PRO-BANTHĪNE®
TABLETS
(HALF STRENGTH)

Pro-Banthīne (Half Strength) has been especially designed for your prescribing convenience.

This new form provides flexibility of dosage from low levels of one tablet t.i.d. for patients with minimal distress, to one or two tablets every 2 or 3 hours for those with more pronounced symptoms.

Primary indications are gastrointestinal spasm, bladder spasm, maintenance therapy of peptic ulcer and "irritable bowel" syndrome. The lower dosage also has a field of usefulness in smooth muscle spasm of children and geriatric patients.

when your prescription reads—
℞ Pro-Banthīne Tablets (Half Strength)
—the pharmacist will dispense this new size (7½ mg.)

PRO-BANTHĪNE *(brand of propantheline bromide)*

Dosage forms:
Pro-Banthīne tablets (15 mg.)
Pro-Banthīne tablets (Half Strength) (7½ mg.)
Pro-Banthīne ampuls (30 mg.)

G. D. Searle & Co., Chicago 80, Ill. *Research in the Service of Medicine.*

Antibiotic Combination Therapy in Acute and Chronic Urinary Infections *

JOHN F. LALLY, M.D.†
New Orleans, La.

As some pathogenic organisms in urinary infections may become resistant to single broad spectrum antibiotic preparations, the combined administration of certain sulfonamides and antibiotics is usually more effective than one antibacterial agent given alone[0]. This has been discussed by a number of investigators who have performed clinical and in vitro studies of urinary infections in which antibiotic combinations were used[2,3,4,9].

Since it is not always practical to make bacterial culture examinations in urinary infections, this study depended primarily upon gram stains of the urinary sediments. The oral antibiotic combination we administered contains oxytetracycline, sulfamethylthiazole, phenylazodiamino - pyridine and glucosamine. The exceptional antibacterial effectiveness of oxytetracycline in urinary disease has been described by several investigators[5,6]. Sulfamethiozole seems to be the agent of choice in the treatment of a wide variety of organisms infecting the urinary tract, including the gram-negative Proteus bacillus[7,8]. The potent analgesic action of phenylazodiamino-pyridine on the inflamed mucosa of the urogenital tract was reported in the literature[9,10]. Glucosamine, a simple amino sugar, increases the absorption of oxytetracycline and tetracycline. With glucosamine, the concentration of these antibiotics in the serum is considerably higher than when they are administered alone[11].

MATERIALS AND METHODS

Each capsule of the antibiotic combination contains:

oxytetracycline with glucosamine	125 mgm.
sulfamethylthiazole	250 mgm.
phenylazodiamino pyridine	50 mgm.

A group of 40 patients with acute and chronic urinary infections were treated. Of these, 23 were men and 17 women.

Our diagnostic procedures included intravenous pyelograms which were done on patients in whom obstructions were suspected. Initial temperatures in most patients were normal. Fresh uncentrifuged urine was collected under antiseptic conditions; in women patients, specimens were obtained by catheter. Urinalyses were made before and after treatment. Bacteriological studies revealed all gram-negative bacilli, except two cases of gram-positive cocci. Sensitivity studies were made on six patients.

When we noted that urine sediments contained no bacteria after treatment, and objective as well as subjective results were excellent, we considered the patient "Cured." "Improvement" was defined as relief of objective and subjective symptoms with some residual pus remaining in the urine. An "Unchanged" evaluation was given when the patient lacked both clinical and bacteriological response.

The antibiotic preparation was given in doses ranging from one capsule t.i.d. to two capsules q.i.d. Therapy lasted from 2 to 15 days. Five patients were given drugs adjunctively, consisting of parenteral penicillin, alone or combined with dihydrostreptomycin, digitalis, diuretics, and sedatives.

RESULTS AND COMMENTS

TABLE I

Results of 40 Patients Treated with Urobiotic

	No. Pt.	Cured	Improved	Unchanged
Acute and Subacute Cystitis	20	20	0	0
Chronic Cystitis	3	0	2	1
Chronic Cystitis and Urethritis	11	1	0	0
Acute and Subacute Prostatitis	7	4	2	1
Chronic Prostatitis	6	2	4	0
Acute Urethritis	1	1	0	0
Acute Urethritis and Cystitis	1	1	0	0
Chronic Pyelonephritis	1	0	0	1
Totals	40	29	8	3

The over-all results are given in Table I. We found that of the 40 patients, 29 (72.5 per cent) were cured and 8 (20 per cent) experienced improvement of symptoms; 3 (7.50 per cent) patients did not respond to treatment.

In the few patients who had temperatures at the beginning of therapy, a considerable drop was seen after 24 hours. After 48 to 72 hours, most temperatures were normal.

---

*Presented before the Section on Medicine at the ninety-first annual session of the Mississippi State Medical Association, May 12-14, 1959, Biloxi, Miss.

†From the Department of Urology, Browne-McHardy Clinic, New Orleans, Louisiana.

HEALTH SCIENCES LIBRARY
UNIVERSITY OF MARYLAND
BALTIMORE

The presence of the phenylazodiamino pyridine in the antibiotic combination effected a rapid relief of symptoms. Usually, within 24 hours after the initial dose, symptoms of dysuria and frequency diminished. This seems certainly more rapid than when antibacterial drugs alone are administered.

It is well known that chronic urinary infections are difficult to treat and show resistance to therapy. When we found that several of our patients with acute and chronic urinary infections were resistant to one or more antibiotic agents, we performed sensitivity studies, using several antibacterial preparations. The drugs included nitrofurantoin, penicillin, sulfonamides, erythromycin, streptomycin and tetracycline. Although the organisms of some patients with chronic infections were resistant to two or sometimes three of these antibacterial agents, they responded readily to Urobiotic therapy.

Below we are reporting three short case histories of chronic resistant cases:

Case 1. C. B., a 68-year-old white female. This patient had recurrent attacks of cystitis for several years. Acute episodes were controlled with various sulfonamides and antibiotics. During the periods of remission, the urine continued to show pus and bacteria in spite of the fact that she was asymptomatic. She was given Urobiotic capsules, 1 q.i.d., for ten days. Her urine became normal and when rechecked six months later, the results were still negative.

Case 2. J. V., a 50-year-old white male. This patient has had a chronic prostatitis and cystitis and a urethral stricture for many years. He also had numerous episodes of acute prostatitis. Over the years, he has been treated with all of the better known urinary antiseptics. In each case it has required seven to ten days to make him asymptomatic. On his last attack he was given Urobiotic, 1 capsule q.i.d. He was asymptomatic within 24 hours, although his pyuria was not appreciably improved. He had been given phenylazodiamino pyridine in the past, but this agent did not relieve symptoms as quickly as Urobiotic.

Case 3. A. W., a 46-year-old white male. This patient has had a chronic prostatitis for about ten years. Approximately every eight to ten months he has had an acute exacerbation. Therapy has always been difficult because of a rectal stricture. Over the years, the patient has received various urinary antiseptics. On his last acute episode he was given Urobiotic, 1 capsule q.i.d., and became asymptomatic within 48 hours. On his last examination his urine was negative, but we could not determine whether any pus was present in the prostatic secretion because of his rectal stricture.

Side effects were seen in only two patients. One of them exhibited a skin rash and some edema after two days of therapy. This patient had a history of reactions to sulfa drugs. The other patient experienced diarrhea, which was abolished by reducing the drug from 2 capsules q.i.d. to 1 capsule q.i.d.

SUMMARY

A series of 40 patients with various acute and chronic urinary infections were treated with Urobiotic capsules*. This antibiotic combination consists of glucosamine-potentiated oxytetracycline, sulfamethiozole, and phenylazodiamino pyridine.

Of the 40 patients, 29 (72.50 per cent) were cured, 8 (20 per cent) improved, and 3 (7.50 per cent) had no benefit from therapy. Urobiotic induced rapid relief of symptoms, an effect that is not ordinarily achieved when only one antibacterial agent is given.

Side reactions were reported in two patients, and consisted of diarrhea, in one, and skin rash and slight edema in another patient. The latter patient has a history of sulfa reactions.

BIBLIOGRAPHY

1. Campbell, M. F.: Principles of Urology, W. B. Saunders Co., Philadelphia, 1957, p. 230.
2. Lind, H. E. and Trafton, H. M.: Combined Therapy in Urinary Infections. Sulfasoxazole and Oleandomycin, Antibiot. Ann. 1957-58, Med. Encyclopedia Inc., N. Y., 1958, p. 685.
3. Eisenberg, G. M. et al: Combined Antibiotic Therapy in Refractory Urinary Tract Infections, J.A.M.A. 152:1302, 1952.
4. Johnson, F. T. and Perry, J. J.: Effect of Novobiocin Sulfonamide Combination on Organisms Generally Associated with Urinary Tract Infections. Antibiot. Ann. 1957-58, Med. Encyclopedia Inc., N. Y., 1958, p. 27.
5. McKenzie, J. A. and Nugent, J. J.: The Clinical Use of Terramycin in Infections of the Urinary Tract, J. Florida Med. Assoc. 37:218 (1950).
6. Nesbit, R. M.; Adcock, J. et al: Clinical Experience with Terramycin in the Treatment of Refractory Urinary Tract Infections, J. Urol. 65: 336 (1951).
7. Carroll, G.: Current Use of Sulfonamides in Urology, Ann. N. Y. Acad. Sc., 69:395 (1957).
8. Goodhope, C. D.: Thiousulfil in Urinary Tract Infections, J. Urol. 72:552 (1954).
9. Buckwalter, F. H. and Cronk, G. A.: Tetracycline and Sulfonamide Serum Urinary Concentrations in Human Subjects, Obtained with a New Produce for Urinary Tract Infections, Antibiot. Med. & Clin. Therapy 5:46 (1958).
10. Garvey, F. K. and Lancaster, J. M.: The Results of Azo-Gantrisin Therapy in 228 Patients with Urinary Infections, North Carolina Med. J. 18:78 (1957).
11. Gittinger, W. C. and Boyer, D. D.: The Biologic Significance of D-Glucosamine, Clin. Review, 1:9, April, 1958.

---

* Pfizer Laboratories, Brooklyn, New York.

Tendon Injuries *

DANIEL C. RIORDAN, M.D.
New Orleans, Louisiana

THE MAIN responsibility for the diagnosis and treatment of hand injuries rests upon the doctor who gives the primary care of this injury. The primary treatment is extremely important in that it determines, to a great extent, whether complications will result and to what degree of usefulness the hand can be restored. Thus, the doctor giving the primary treatment has the greatest responsibility and yet, in a large number of instances, rather minor significance is attached to the treatment of hand injuries. The purpose of this paper is to present some fundamentals in the primary treatment of hand injuries, in the hopes that better primary care can be given.

FIRST AID TREATMENT

As in any open (compound) injury, the wound should be protected from further contamination or damage. Clean or sterile dressings should be used to cover the wound, bleeding should be controlled by pressure whenever possible, and tourniquets should not be applied for emergency transportation unless bleeding cannot be controlled by pressure dressings. If possible, the hand should be splinted in some manner for the emergency transportation of the patient.

When the patient is seen by the doctor, a history of the details of how the accident occurred should be obtained. The time, place, causative agent and mechanism of the injury should all be determined since they are important in determining what the care will be. X-rays of the hand should be taken, preferably with the dressings in place, before the hand is examined. After the x-rays have been taken, the patient should be moved to an operating room or an emergency room with complete operating facilities available. The examination of the wound should be done under completely sterile conditions and the examiner should wear a mask to prevent further contamination of the wound.

WOUND EXAMINATION

After the history has been obtained and the x-rays reviewed and the patient has been taken to the operating room, the hand may be examined. The patient is not anesthetized. The wound is inspected. Sensation of all of the parts is tested and active motion of all of the parts is tested, against resistance, if possible. Tests are made to determine whether or not the function of the profundi and sublimi of the fingers is present as well as function of the intrinsic muscles of the finger and the thumb and the wrist and finger extensors. The findings of this examination should be recorded at the time so that accurate records will be present, in case of later questions concerning the injury.

After this examination has been completed, the patient may then be anesthetized by the method chosen. This may be done by nerve block or by general anesthesia, and in most cases, we prefer general anesthesia. No surgery of the hand should be attempted without the bloodless field produced by proper application of a tourniquet and in all cases, no matter how trivial, a tourniquet should be used. The tourniquet is applied before the cleansing of the hand is done, in order to prevent further bleeding.

The wound is covered with sterile dressings and the surrounding skin is shaved and cleansed with a soap or detergent and a suitable antiseptic. The antiseptic is not introduced into the wound and after completion of the preparation of the skin, the extremity is draped so that the hand is freely movable for the complete care. The surgeon then changes gown and gloves and proceeds with the surgical care of the wound.

If the wound has to be enlarged, in order to make the proper examination and treatment of the tissues, the principles laid down by Bunnell in his excellent text book should be adhered to. Incision should parallel flexion creases and if a flexion crease has to be crossed, a zigzag, or curving incision should be made so that scarring in the flexion crease with subsequent contraction will not occur.

In the hand, as in the face, all tissues should be spared as much as possible. Any tissue that is devitalized should be excised. A minimal amount of skin edge is excised and only traumatized noncontracting muscle is excised. Tendons and nerves should be preserved, if possible, unless it has been determined that the involved part or parts of fingers are to be amputated. Bone fragments should be preserved, unless they have been completely detached from surrounding tissue, in which case, they should be removed.

After the removal of all devitalized tissue, the repair of the hand then can be undertaken. The first thing to be done is to repair the bony parts that have been damaged. If dislocations are present, they should be reduced. If they are stable, no further treatment of the dislocation is required except for the immobilization to be used after the completion of the repair of the hand. If the dislocations are unstable and will not remain reduced, a small Kirschner wire may be drilled across the site which will prevent recurrence of the dislocation. This wire is usually cut off beneath the level of the skin and allowed to remain during the healing period. It may be removed at a later date, under local anesthesia. If fractures are present and are unstable, they also should be reduced under direct vision and in most cases, small Kirschner wires placed obliquely across the fracture line, will maintain a reduction until the postoperative splint has been applied. Not all fractures of the hand have to be pinned, but all unstable fractures should be pinned in order to preserve anatomical alignment. A small Kirschner wire hand drill, devised by Dr. Bunnell and his associates, is suitable for the introduction of the small Kirschner wires. In some instances, the electric motors have attachments which can be used for the insertion of these wires.

---

*Presented before the Section on Surgery at the ninety-first annual session of the Mississippi State Medical Association, May 12-14, 1959, Biloxi, Miss.

TENDON INJURIES

In the fingers, laceration of the tendons is usually best treated primarily by the initial wound treatment and allowing the actual tendon laceration to go unrepaired until a later date. Occasionally, primary repair of the lacerated tendons in the finger is indicated but the indications for primary repair are very few and limited. If the injury should beat the insertion of a profundus tendon and the remainder of the tendon is not damaged in any way, the profundus could be reinserted into the distal phalanx. If the injury is proximal to the distal interphalangeal joint and distal to the distal flexion crease of the palm, no primary repair of the tendon should be done. This is the area described as "no man's land" by Dr. Bunnell and it is the area that leads to the greatest degree of adherence in any circumstances. No primary treatment of laceration in this area should be done at any time.

Lacerations of the profundus and sublimus tendons in the palm of the hand from the level of the volar carpal ligament to the distal flexion crease of the palm, may be repaired primarily. In this instance, the sublimus tendons are not repaired but are allowed to retract out of the wound and only the profundus tendons are repaired. This will prevent adherence of the profundus and sublimis tendons together and will give a far better range of motion than it is possible to obtain when both flexor tendons are repaired. A finger with good profundus function has essentially a normal range of motion in contrast to a finger having only sublimis function which has a definitely limited range of motion.

Lacerations of the flexor tendons proximal to the volar carpal ligament may be repaired individually and the profundus and sublimis tendons can be repaired with less chance of adherence and resulting limitation of motion. Knowledge of the anatomy and interrelationships of the tendons is necessary in order to be able to attach the proper tendon ends together when multiple lacerations of the tendons are present.

Extensor tendon lacerations may be repaired at any level, in the fingers, hand or forearm. If the laceration should be underneath the dorsal carpal ligament, then the dorsal carpal ligament should be excised and the tendon repaired. Usually, the tendons on the dorsal aspect of the wrist do not bowstring sufficiently to interfere with function and the removal of a ligament prevents the formation of adhesions to this structure, so that a good range of motion in the finger usually results. The repair of the extensor tendons is most difficult in the fingers, especially over the middle and distal joints of the fingers. The tendon here is quite flat and thin and requires extreme care to get good approximation. The finest of sutures should be used. This is preferably of the non-absorbable type or of the pull-out wire technique as described by Bunnell.

NERVES

As a general rule, no attempt is made to repair the lacerated nerves on the dorsal aspect of the hand, since the sensory innervation on the dorsal aspect of the hand is not usually functionally important. Sensation on the flexor side of the fingers is, however, very important and whenever possible the nerves should be repaired. In the fingers the nerve ends should be approximated, if it is at all possible, and usually satisfactory repair of these nerves can be done with the expectation that a good return of sensation will result. The nerves are purely sensory at this level and usually a full return of function will be obtained. The same is true of lacerations of the nerves in the palm, except for the motor branches of the median and ulnar nerves. Lacerations of the motor branches of these two nerves, if properly identified, can be sutured and this has been successfully reported by both Bunnell and Boyes, independently. In this situation, where a pure motor nerve is sutured, a reasonably good return of function can be expected. When the repair is made at a later date, however, the duration of time existing between the laceration and the repair will greatly determine the degree of function returning. If the delay has been sufficiently long to allow complete degeneration of the nerve endings, then function probably will not return.

Lacerations of the nerves at the level of the volar carpal ligament, or proximal to this, means that the nerves are mixed and there is no way to identify the sensory and motor components of the nerve. Great care should be taken to try and prevent torsion of the nerve in the hope that sensory fibers will be approximated to sensory fibers and motor fibers to motor fibers. In the larger nerve trunks, small vessels may be visible on the nerve and serve as useful landmarks in the approximation of the nerves.

It has been recommended by some persons that a delayed repair of the nerve be done, but we feel that in our experience the primary repair serves well in most instances if the nerve has not been severely traumatized. If the nerve has been severely traumatized, it is best to do a very simple suturing to prevent retraction of the nerve and to plan to do a secondary repair of the nerve at four to six weeks after good primary healing of the wound has occurred.

SKIN CLOSURE

In inscised or in some lacerated wounds, simple closure of the wounds is possible. This closure is best done by using the stainless steel wire technique as devised by Bunnell. The wire is without reaction in the tissues and the sutures may be left in for the full three weeks, if necessary, without any reaction occurring around the suture material. Wire gives good approximation of the skin and makes it unnecessary to use subcutaneous material.

Tendons, joints and nerves must not be left exposed, otherwise necrosis will occur. If a tissue defect is present and a local flap can be swung over to cover a defect in a joint, tendon or nerve, this should be done. The donor area can then be split grafted to give adequate closure. The need of proper coverage is great but the limitations of local flaps make the indications for this rather limited. If local flaps should be used, care should be taken so that the blood supply of the flap is not devitalized, so that resulting slough will not lead to a larger wound defect. If tendons, nerves and joints can be covered with skin and subcutaneous tissue, then the remaining defects can be split grafted. The donor area for this split graft may be the forearm, abdomen or thigh, depending upon the amount of skin needed. Any of the techniques for removing split skin grafts is acceptable. Whenever split skin grafts are used, it is felt that a splint type of dressing should be used to provide immobility of the graft so that healing can occur. If the dressing is loose and allowed to slide about on the hand, this may mechanically dislodge the skin graft so that a successful take will not be obtained. The splint dressing usually using mechanics waste, provides adequate fixation of the graft.

In some cases where local flaps cannot be used to cover tendons, nerves and joints and these structures and their underlying parts are worth saving, primary flaps may be used to cover the defect. In some cases, small flaps from an adjacent finger may be used to cover the defect with split grafting of the donor area. In many cases, however, the wounds are rather extensive and small flaps such as this do not suffice. In this case, abdominal flaps are the choice and the flap should be so placed that there is no tension on the flap itself or that there is a minimal amount of torsion on the base of the flap. If a large section of the skin and subcutaneous tissue is needed, a broad base abdominal flap may be used and the base may be either proximal or distal, depending upon the location of the wound. The fundamentals laid down by many people must be observed so that the proper proportions between the length and width of the flap are maintained. The flap should always be much wider than it is long, to insure adequate blood supply. In certain instances, the amount of skin needed is small enough to allow a single stage, two pedicle to be used. In this situation, the technique as described by Shaw and Payne is used. Immobilization of the arm to the body is necessary when abdominal flaps are used and plaster immobilization is usually necessary. Most abdominal flaps of this type can usually be cut down in three to four weeks. Proper care should be taken, however, to make sure that the blood supply of the flap is adequate. If there is any doubt at all, then delay of the pedicle should be done in stages to insure the proper preservation of the flap. In general, it can be said that if the flap has been laid down so that it completely covers the defect and there is to be no reverse extension of the flap when it is cut loose, then three to four weeks is sufficient time to allow the complete flap to take in order to detach it.

POSTOPERATIVE DRESSING

The postoperative dressing is extremely important and is essential to protection of the involved damaged parts. Whenever possible, the position of function should be assumed. In this position, the wrist is dorsiflexed and the finger joints are all flexed to a moderate degree. The thumb is in a partially abducted position. This position of function may be used for the postoperative dressing in most tendon injuries in the fingers or palm or for nerve injuries. If the extensor tendons have been damaged, then the fingers will have to be extended to a greater degree, but should not be placed in complete extension under any circumstances. The fingers should be separated with gauze and if there has been extensive damage, a pressure dressing of mechanics waste should be used. This affords even application of pressure without constriction. The dressing itself is made stable by the application of plaster splints which are available in all installations during this modern day. This pressure dressing should be applied very carefully and should be comfortable and not cause any localized increased areas of pressure. This type of pressure dressing is best applied with mechanics waste and gauze rather than ace bandages. The pressure can be more accurately controlled with multiple layers of gauze whereas an ace bandage sometimes tends to constrict rather than apply proper pressure.

Continuous and uninterrupted elevation of the hand should be provided for thirty-six to forty-eight hours following the initial injury and its repair. Antibiotics are given and the choice of the antibiotic depends upon the condition of the injury and the probable nature of the contaminant organism. Tetanus antitoxin should be administered, or the toxoid, if prior inoculation has been given. If there is no clinical evidence of infection evident within forty-eight hours, the patient may be allowed ambulatory freedom and elevation of the hand may be discontinued.

If nerves and tendons have been lacerated and repaired, three or four weeks of immobilization are necessary in order to allow adequate time for healing of these structures. After this period of time, active motion can be started and this is a graded exercise program and full strength should not be demanded until a period of at least six weeks has elapsed in order to allow complete healing of the parts. If motor nerves have been severed, corrective splinting should follow the removal of the postoperative dressing. In the case of the ulnar nerve, this splinting should be directed towards preventing hyperextension of the metacarpophalangeal joint. In the case of the median nerve, this splinting should be directed toward holding the thumb in the partially or fully opposed position. The doctor should control the postoperative course of the patient and frequent visits and instruction as to the proper type and amount of exercise should be given. If skilled physical therapy help is available, the patient may be turned over to a physical therapist, but the doctor should continue to observe the patient so that no damage will be done by over enthusiastic care.

If fractures are present and have been treated, immobilization will have to be continued, usually for a longer period than three weeks. Adjacent parts should be allowed motion as soon as possible, if they are not injured, so that the entire hand will not become stiffened through disuse. Most fractures, if internally fixed with Kirschner wires, can be allowed motion after four to five weeks, depending upon the location of the fracture and the stability of the fixation agents.

SUMMARY

First aid dressing should be applied to acute injuries as early as possible. This should be a sterile dressing, if available.

X-ray examination should be made without disturbing the dressing on the hand, if possible.

Examination of the hand should be done under sterile conditions, preferably in the operating room. This should be done with the patient's full cooperation and determination of motor and sensory damage should be made at this time.

Surgical repair of the damaged hand should be done in the operating room with full facilities available.

The principles of the repair of nerves, tendons and skin coverage have been presented. Tendons, nerves and joints must not be left exposed and must be covered with skin and subcutaneous tissue. If primary closure is not obtainable with the normal coverage, then small local flaps may be used, or abdominal flaps become necessary. Split skin grafts may cover parts, other than those mentioned above.

Postoperative dressing should splint in the position of function whenever possible. Pressure dressings should be used to prevent unnecessary edema.

Postoperative immobilization should be continued for three weeks and then followed by a graded program of exercises to restore motion.

REFERENCE

Bunnell, Sterling, Surgery of the Hand, J. B. Lippincott Co., Philadelphia, Second Edition, 1948.

Applied Anatomy for Ptosis Surgery*

FRANK ADAIR, M.D.†
St. Paul, Minnesota

There are few operations that give more satisfaction to the surgeon than the successful correction of muscular deformities about the eye. And there are few patients who are more lastingly grateful to their surgeons than those who have had such deformities corrected.

There is something about visible ocular defects that is different. Human nature being what it is, a limp or a brace or a deformed back will evoke silent pity, while a crossed eye or a drooping lid will excite ridicule.

The child whose eyes cross must learn early in life to parry the question, "Who are you looking at, anyway?" and to ignore the greeting, "Hi, Cockeye!" To be called "Droopy" or "Blinky" is all too familiar to the child with a ptosis of the upper lid. These cruel words cut like a knife into the heart of a child. It is important that the conditions which provoke them be corrected before he is old enough to have them endanger his personality.

But it is even more important that their surgical correction, once undertaken, be done well. This is only possible when the surgeon has a thorough, complete, and detailed knowledge of the anatomy involved. This is particularly important in the matter of ptosis of the upper eye lid.

Resection of the levator muscle is the most frequently employed technique for correcting ptosis of the upper eyelid. Provided the operator thoroughly understands the anatomy of the levator muscle and the related fascial planes, this operation is safe, simple, and usually successful.

In conjunction with Dr. Walter King, in his work on the oblique muscles, I have recently reviewed and dissected the upper orbital structures. It is hoped that the following anatomical review will be useful to some of you, as it has been to me, at the operating table.

NOTES ON EMBRYOLOGY

The four recti muscles, with the obliques, separate out from the mesodermal cone at the two months or 20 mm. stage of embryonic development. The levator appears much later as a small muscle slip separating from the medial border of the superior rectus. At the 75 mm. stage, it overlaps the superior rectus and grows rapidly forward, but does not reach its final position until the fourth or fifth month of fetal life. This late appearance of the levator may account, in part, for some of its congenital weaknesses.

ANATOMY OF THE LEVATOR

The levator palpebrae superioris muscle is the special elevator of the upper eyelid. By contraction of this muscle's belly, the transverse aponeurosis is pulled back over the globe, pulling with it the skin of the lid, the tarsal plate, and the loose conjunctiva of the superior fornix. It acts in harmony with the superior rectus with which it shares the same nerve supply, though it may act independently. It can also act in unison with the frontalis muscle, as in expression of amazement. All three muscles act together in looking up.

The levator muscle is thin, flat, and roughly in the shape of an isosceles triangle. It arises by a short tendon from the lesser wing of the sphenoid bone just above the annulus. Its origin blends inferiorly with the superior rectus and medially with the superior oblique. It passes forward close beneath the roof of the orbit, the frontal nerve and the supra orbital artery lying upon it. From the beginning, the levator lies upon the superior rectus, the medial borders of the two muscles being adherent by a thin fascial sheath.

As the muscle approaches the septum orbitale, it terminates in a smooth glistening expanded aponeurosis. This aponeurosis is shaped like a visor and splays forward to become attached primarily to the skin of the whole of the pre-tarsal part of the lid. The lateral extremities of the aponeurosis remain tendinous and form the two horns which attach to the bone at the lateral and medial orbital margins.

The lateral horn is the stronger, and after cutting into the lacrimal gland, it inserts at the orbital tubercle of the zygomatic bone. The medial horn passes over the tendon of the superior oblique and fuses with the medial palpebral ligament to attach to the lacrimal bone.

---

*Presented before the Section on EENT at the ninety-first annual session of the Mississippi State Medical Association, May 12-14, 1959, Biloxi, Miss.

†From the Department of Ophthalmology, University of Minnesota, and the Charles T. Miller Hospital, Saint Paul, Minnesota.

The secondary attachments of the levator are to the upper margin of the tarsal plate and to the conjunctiva of the upper fornix. The former is accomplished by the superior palpebrae muscle or Muller, and the latter by slips of the fascial sheath of the muscle's belly.

RELATED FASCIAL SHEATHS

The fascial sheath of the levator is thin posteriorly. The anterior part of the sheath, just behind the aponeurosis, becomes thick and spreads transversely across to reach the orbital walls on either side. This horizontally displaced sheath lies above the aponeurosis and is said to be the true check ligament to the levator, preventing its overaction.

The septum orbitale, or tarsal ligament of Winslow, is membranous and quite thick at its origin along the periosteum of the orbital margin. Its fibers pass downward to fuse with aponeurotic fibers and are carried forward with them to attach to the skin of the upper lid. This disposition of septum fibers aids in forming the external palpebral fold when the lid is elevated.

PRACTICAL ANATOMICAL CONSIDERATIONS AT TIME OF SURGERY

1. Make a good dissection of the aponeurosis, picking up the glistening white ribbon over as wide an area as possible. The tongue for resection should be at least as wide as the "Berke" ptosis clamp, which is 14 to 15 mm.

2. Be sure to identify the orbital septum. It appears as a thin white fascial wall falling perpendicularly, onto the upper part of the aponeurosis.

3. Resect enough of the muscle. It is easy to take 14 mm., or more, and this would rarely be too much.

4. When reattaching the muscle, space four to six mattress sutures so that the cut end can be spread out to conform to the lid margin from the medial to the lateral extremities, just as the natural aponeurosis splays horizontally.

5. Pass each suture through the orbital septum, being careful to take the bite high and near the periosteal attachment at the upper orbital rim. This copies the natural attachment and gives the lid a well formed palpebral fold.

6. Bring the sutures out low, near the cilia, and spaced across the entire margin of the upper lid. This is the area of the primary and main insertion of the terminal cutaneous fibers of the levator.

7. Try using one of the operations in which the conjunctiva of the upper fornix is shortened and pulled up with the sutures, such as the Iliff operation. One of the secondary points of insertion of the levator sheath is into the conjunctiva.

SUMMARY

1. The gross anatomy of the levator palpebrae superioris is reviewed.

2. Some practical points of the applied anatomy for ptosis surgery are listed.

3. A short film is shown to demonstrate some practical anatomical features during an operation.

REFERENCES:

1. Whitnall, S. Ernest: Anatomy of the Human Orbit. p. 142. Oxford Medical Publications, 1932.
2. Fink, H. Walter: Surgery of the Oblique Muscles of the Eye. p. 76. St. Louis: C. V. Mosby Company, 1951.
3. Wolff, Eugene: The Anatomy of the Eye and Orbit. p. 189. New York: McGraw-Hill Company, 1955.
4. Iliff, C. E.: A Simplified Ptosis Operation. Am. J. Ophthalmology, 37: 529-533 (April), 1954.

> *To place your name by gift or bequest in the keeping of an active educational institution is to be sure that the name and the project with which it is associated will continue down the centuries to quicken the minds and hearts of youth, and thus make a permanent contribution to the welfare of humanity.*
> —Calvin Coolidge

Large Colloid Goiters with Substernal Components

JAMES D. HARDY, M.D., F.A.C.S.†
Jackson, Miss.

WHILE THERE exists a wide range of opinion regarding the optimal treatment of thyrotoxicosis and certain thyroid cancers, there exists little disagreement regarding the desirability and even necessity for the surgical management of very large colloid goiters. The reason for this is that such goitrous masses may enlarge until serious *tracheal compression* occurs and asphyxia can result. Other reasons for the removal of such lesions are as follows:

1. Cosmetic improvement.
2. Febrile reaction due to necrosis within the large gland.
3. Sudden hemorrhage into the gland with rapid enlargement and associated pain.
4. Dysphagia.
5. The possibility of neoplastic or toxic change.

The simple colloid goiter may reach an enormous size. Furthermore, the portion of the goiter that is visible to the patient and the physician may represent but a relatively small segment of the entire gland. This is due to the fact that the goiter may expand posteriorly, lateral to the trachea on each side, and it may extend far down into the mediastinum. In fact, some goiters are located entirely within the thorax and have no obvious attachment to the thyroid gland itself. However, such goiters are rare, in our experience. That is, when one finds a substernal goiter, there is usually an associated enlargement of the cervical portion of the thyroid gland.

Diagnostic Problems in Substernal Goiters

Rate of Activity of the Gland. It may be surprisingly difficult actually to exclude thyrotoxicosis in the presence of a very large goiter with a substernal component. First, the BMR may not be reliable because of respiratory difficulty due to partial obstruction of the airway by the large goitrous mass. Second, the radio-iodine uptake is measured with difficulty, due to the fact that the counting of the radioactivity beneath the sternum may be erroneous and otherwise defective. Third, a surprisingly large number of thyroid patients have had iodine-containing materials for radiography in the relatively recent past, and many times the protein-iodine level is not dependable. Nevertheless, if a patient has not been taking thyroid substance, then the protein-iodine level is frequently the most reliable index of thyroid activity available in the presence of large substernal goiters. The conversion ratio, representing essentially the rate of conversion of radioactive iodine into the organic iodine compounds of plasma, is also a useful measurement in the presence of large goiters where the radio-iodine uptake by the gland cannot be counted accurately.

Finally, the value of the clinical evaluation of the patient from the point of view of the possibility of thyrotoxicosis is certainly not to be neglected.

Extent of the Mass. It is a wise practice to request a chest x-ray on all patients whose goiter appears to extend below the jugular notch. A patient had a thyroidectomy and when a routine chest film was taken in the postoperative period a large mediastinal mass was noted. This was well below the thoracic inlet and its nature was in considerable doubt until a thoracotomy disclosed a grapefruit-sized mediastinal goiter which had had no apparent connection with the gland in the neck.

Being forewarned of a substernal extension of the goiter, one will be prepared to excise this mass, whether by use of the simple collar incision, a vertical extension of the collar excision to permit division of the sternum, or a separate formal posterolateral thoracotomy incision.

A lateral film in the presence of an obviously large goiter may disclose a component between the trachea and the esophagus which can be outlined by a barium swallow. Prior knowledge of the presence of a mass in this position is helpful to the operator.

Visualization of Vocal Cords Preoperatively. Another precaution which one should take is that of indirect laryngoscopy prior to surgery to be certain that both cords move. It is not rare that a large goiter, particularly if calcified or malignant, may be associated with paralysis of one or the other of the cords due to compression of a recurrent laryngeal nerve. Forewarned with this information, the surgeon will be extraordinarily careful to avoid any possibility of injury to the remaining functioning nerve.

Operative Management of Large Substernal Goiters

Anesthetic Problems. The proper anesthetic management of the patient who is to have resection of a large substernal goiter is of paramount importance. To begin with, the patient may already have partial obstruction of the trachea due to compression by the mass, and this may grow rapidly worse during attempts at induction. When serious respiratory distress does occur in the patient with a huge goiter, the performance of a tracheostomy can be extraordinarily difficult because of the large mass anterior to the trachea. In fact, the writer knows of one patient who declined operation until she was in considerable respiratory distress. She suddenly became worse on the ward the night prior to surgery and before a tracheostomy could be performed (the intratracheal tube could not be passed) she was asphyxiated.

---

†Professor and Chairman, Department of Surgery. Surgeon-in-Chief to the University Hospital, University of Mississippi Medical Center, Jackson, Miss.

When a patient has respiratory difficulty due to compression of the trachea by a very large goiter, pentothal should certainly not be used. The reason for this is that the conscious patient will make every possible effort adequately to ventilate the lungs and oxygenate tissues of the body. In contrast, a patient whose senses have been benumbed or abolished is likely not to make the extra effort that is required, and he may very rapidly become asphyxiated when the anesthesiologist is not able to ventilate the lungs sufficiently. The safest method in the most critically situated patient is to anesthetize the mouth, pharynx, and trachea with topical anesthesia and then to pass the endotracheal tube with the patient awake. Once the tube is in place the greatest hazard associated with the resection of huge goiters has been overcome. Thereafter one knows that the patient can be adequately ventilated and from this point onward one has the patient under physiologic control, so long as the blood loss is replaced.

Operative Technique. Through the usual transverse or collar incision, placed at a distance about one and one-half inches above the sternal notch, the skin and platysma are divided and the skin flaps are then dissected upward and downward. The upper flap is raised until one has come to a point above the thyroid cartilage, though in very large goiters it may not be possible to identify the thyroid cartilage initially. The strap muscles are then separated to expose the goiter. Subsequently the strap muscles are divided on one or both sides, as required for safe exposure.

At this point in the dissection one usually must decide which lobe to attack first, whether to divide the thyroid in the midline above the trachea into two separate halves, or whether to enucleate the larger portion of the colloid goiter, tidying up the remaining portions more carefully. There can be no question that in truly enormous benign colloid goiters the entire procedure is effected more safely by simply enucleating large masses of the goiter. Such a procedure is particularly helpful if one has not the opportunity to identify the recurrent laryngeal nerves, and if he is apprehensive concerning the possibility of excising an excessive amount of parathyroid tissue.

When the thyroid masses in the neck have been excised, the substernal extension can be dealt with. It is our usual procedure to divide the cervical portion from the intrathoracic portion, to facilitate the exposure and to simplify the inferior thyroid artery. Once one is ready to turn his attention to the intrathoracic component of the goiter, he may find that it can be delivered without a further sternal splitting or of thoracotomy incision. Often one can use the index finger to encircle the substernal component and deliver it into view. At other times one can take two sterile tablespoons and deliver the intrathoracic mass much as the head of the fetus would be delivered by the obstetrician using low forceps. Or, one can at times decompress (enucleate) the greater portion of the intrathoracic mass through the thoracic inlet. When this has been done the remaining portion is often readily delivered into the neck wound.

There is relatively little hazard attendant upon the delivery of the intrathoracic or mediastinal component of the goiter, since most of those in the superior mediastinum derive their blood supply from the inferior thyroid artery. Nevertheless, one must always bear in mind the possibility that the mediastinal component of the goiter derives its blood supply separately, from the subclavian or the aorta, and that brisk hemorrhage can occur if undue traction is exerted without concomitant direct visualization of the structures being delivered.

In general, if the substernal mass cannot be readily delivered with the finger, decompressed and enucleated, or delivered into the neck incision otherwise, a *sternal splitting incision* should be employed. This incision is easy to execute. One simply incises the skin vertically downward over the sternum as shown in Figure 1. The sternum is then exposed and the sternal knife is used to divide the sternum. The mallet does not need to be struck very hard against the sternal knife to divide the sternum quite readily. Once this has been achieved a rib spreader is inserted and the sternal defect is opened as widely as is needed. The anatomy of the superior mediastinum is shown in Figure I. One need not be concerned regarding injury to the great vessels or heart if he has palpated with his finger beneath the sternum as the

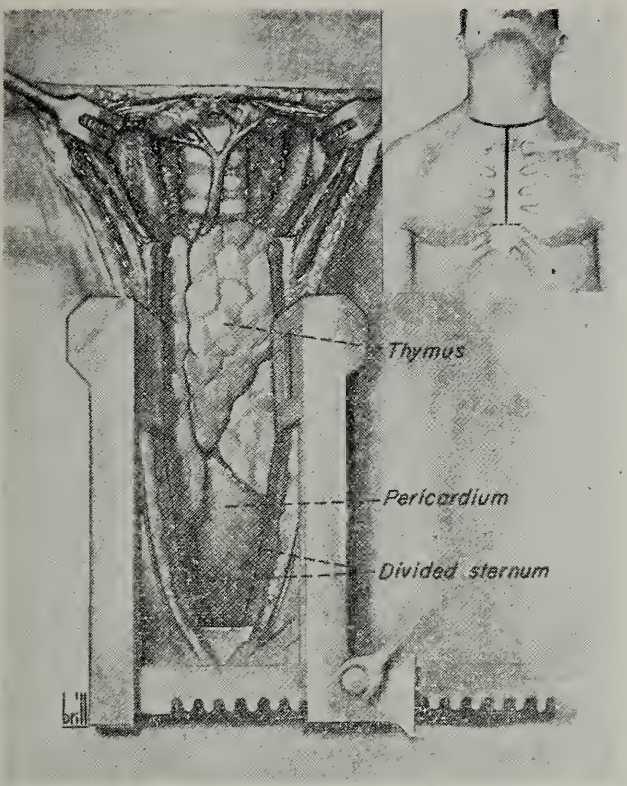


Fig. 1. The vertical extension of the transverse collar incision, with splitting of the sternum, gives excellent exposure of the structures of the superior mediastinum. (From Hardy, J. D.: *Surgery and the Endocrine System*. Philadelphia and London. W. B. Saunders Company, 1952).

sternal knife is driven downward. It is a simple matter to dissect the mediastinal structures off the sternum with blunt dissection with the index finger. Bleeding from the sternal marrow can be controlled with bone wax or Gelfoam sponge.

In our experience, whether the goiter lies anterior or posterior to the great vessels, the sternal splitting incision affords adequate exposure to deal with the goiter successfully (Figs. 2, 3). We feel that a formal thoracotomy incision is necessary only when the goiter clearly lies far down in the chest and is lateralized far to one side or the other. This is a rare circumstance.

Once the goitrous masses have been freed up and delivered, one is usually surprised at the relatively meager blood supply which they had, most of it being derived from the inferior thyroid artery in the neck.

Following excision of the mediastinal masses the superior mediastinum is drained with a rubber catheter connected to underwater drainage and suction. If one has avoided perforating the pleura a pneumothorax need not be a concern, though one frequently does penetrate the pleura and the pospossibility of a postoperative pneumothorax should be borne in mind and ruled out by means of a postoperative chest film. At this point the recurrent laryngeal nerves can, perhaps for the first

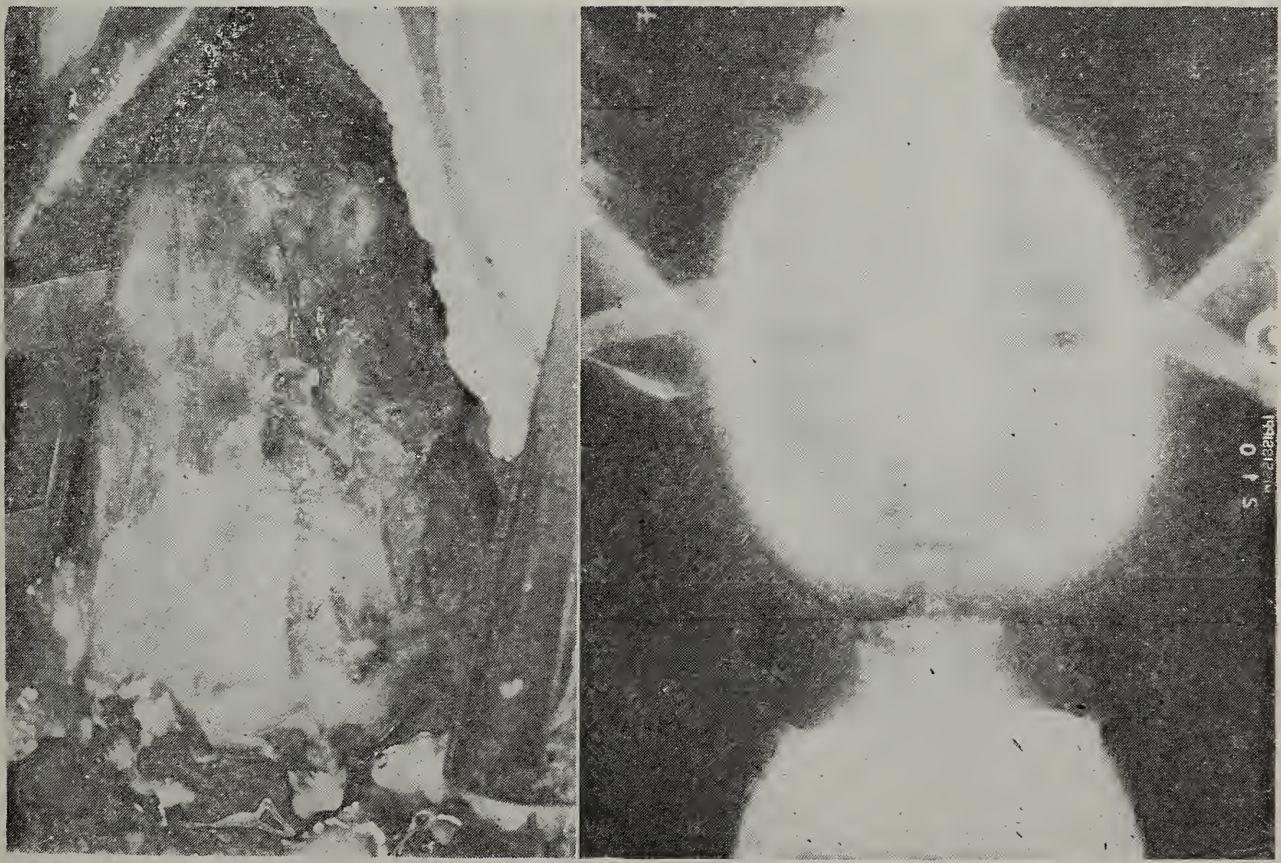


Fig. 2. *Left.* Roentgenogram showing cervical and intrathoracic components of a large colloid goiter. *Right.* The sternum has been divided and spread with a rib retractor. A portion of the substernal extension of a large goiter is exposed. Here it lies anterior to the left innominate vein and the large arteries. (From Hardy, J. D.: *Total Surgical Management*, New York, Grune and Stratton, Inc., 1959.)

time, be adequately visualized and their status determined. If one has been careful to avoid sharp dissection in their neighborhood before they were positively identified, however, they will rarely be injured despite the large size of the goiter. Once again, one need make no apologies for enucleation of large portions of the very large colloid goiter. Bleeding is surprisingly slight, the masses are made far more manageable and, most important of all, one can in this way leave the posterior capsule of the gland and thus avoid injury to the recurrent laryngeal nerves and also avoid the excision of excessive amounts of parathyroid tissue.

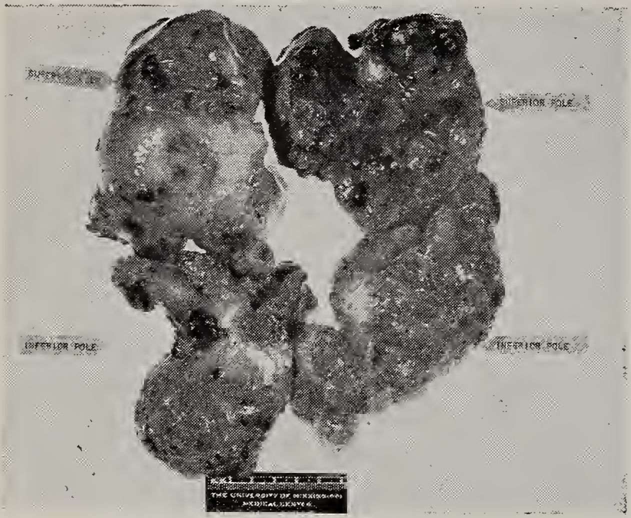


Fig. 3. Very large goiter with intrathoracic (mediastinal) components almost equal in size to the cervical mass. The lower half of each lobe was situated beneath the sternum. By splitting the sternum excellent exposure was secured.

Assuming that adequate drainage of the neck and mediastinal areas of dissection has been carried out, the postoperative course of these patients is remarkably mild. The drains are removed progressively over the first few postoperative days, depending upon the amount of drainage, and the skin sutures are removed by the third or fourth day. The patient should have a BMR at the end of three months to determine whether or not thyroid therapy is indicated. Since these very large goiters often occur in women who are near or beyond the menopause, the requirements of the body for thyroid substance are not as great as they are in growing or reproducing women, and relatively small amounts of remaining tissue may suffice to prevent hypothyroidism.

Management of Postoperative Complications

Respiratory Obstruction. The patient may have crowing during the night following surgery due to laryngeal edema. This frequently is remarkably benefited by the use of a croup kettle, perhaps containing tincture of benzoin in the water from which the steam is made. However, if this does not relieve the condition and respiratory distress is clearly apparent, the wound should be reopened and, if bleeding is found, the clot should be evacuated and a tracheostomy performed. A tracheostomy performed in time will obviate the major hazard following thyroidectomy, namely, tracheal compression by hematoma and death from asphyxia.

Recurrent nerve damage does not constitute a major problem if only one nerve has been injured. On the other hand, if both nerves have unfortunately been injured, which is indeed rare, one must perform a tracheostomy to avoid respiratory distress due to occlusion of the larynx.

Hypoparathyroidism. If one has been careful to leave a portion of the posterior capsule of the gland, and if he has inspected the excised portion of the gland for parathyroid glands, it will be rare indeed that permanent hypoparathyroidism is produced, though temporary hypoparathyroidism is not rare. If the patient complains of numbness and tingling and Chvostek's sign and Trousseau's sign are present, the presence of hypoparathyroidism must be suspected and calcium and phosphorus determinations requested. While these analyses are being determined, however, the patient should be given one ampule (10 cc. of 10 per cent) of calcium gluconate intravenously, and calcium gluconate or calcium lactate therapy should be started by mouth (3 grams every 6 hours). In addition, vitamin D should be given orally in doses of from 50,000 to 300,000 units daily. This vitamin D and calcium gluconate therapy will usually suffice, and it is rare indeed that one must also use the longer-acting minerals such as dihydrotachyterol.

Even when there is a definite hypoparathyroidism present, as reflected in a serum calcium level that is depressed (normal, 9 to 11 milligrams per cent) and a serum phosphorus level that is elevated (normal, about 4 milligrams per cent) this condition is transient in most patients. Therefore, after several days of calcium and vitamin D therapy one should stop treatment and then obtain further serum calcium and phosphorus determinations. It will usually be found that the temporary hypothyroidism was probably due to the excision of one or more glands as well as temporary diminution of blood supply to the remaining ones.

By and large, however, patients who have undergone excision of large colloid goiters have an uneventful convalescence and are most gratified

(continued on page 74)

The Management of Urinary Calculi
in General Practice

GORDON L. MATHES, M.D. and RAYMOND F. MAYER, M.D.†
Memphis, Tenn.

The incidence of urinary calculi is higher in the southeastern portion of the United States than in any other area. The reason for this geographical "stone belt" is not known, but probably is related to climate, mineral content of the soil and water, and dietary habits.

Since the family doctor is usually the first physician to see a patient who has suddenly developed severe colicky pain in the flank, with or without hematuria, it is his responsibility to arrive at the diagnosis, start treatment, and decide on the course pursued.

DIAGNOSIS

An ureteral calculus usually forms in the kidney, where it remains silent until starting its descent thru the uretero-pelvic juncture into the ureter. Depending on the size and surface roughness the calculus may lodge at the outlet of the pelvis or at any level down the ureter. The majority lodge in the lower one-third of the ureter.

Hematuria, often microscopic, is present in about 80 per cent of cases, due to the abrasive action of the calculus on the ureteral mucosa If the calculus produces complete obstruction of the ureter, no drainage will get thru and hematuria may be absent.

SYMPTOMS

Typically an ureteral calculus produces rather sudden onset of severe flank pain, radiating into the ipsolateral testis or groin. Nausea and vomiting frequently are present. The patient with ureteral colic usually cannot lie still and will pace about or toss in bed until relief is obtained.

Frequency and urgency of urination are noted when the calculus approaches the trigone area of the bladder. Indeed, we have seen patients treated for "cystitis" for weeks without relief before urological consultation was requested and a calculus in the lower ureter was found to be causing the bladder symptoms.

As spasm of the flank muscles develops, abdominal rigidity and tenderness may closely mimic appendicitis. However, pain from percussion over the kidney area and the absence of local rebound tenderness usually indicate calculous disease.

LABORATORY FINDINGS

In the differentiation of ureteral colic from appendicitis, routine urinalysis and complete blood count are helpful. Hematuria and a normal leukocyte count, with a normal differential, suggest urinary tract pathology requiring further investigation. However, one must not forget that a retrocecal appendix may lie on the ureter and produce hematuria and pyuria from contiguous inflammation.

ROENTGEN FINDINGS

Ninety-five per cent of urinary tract calculi are calcigerous and radio-opaque and should, therefore, be apparent on a plain film of the abdomen. Calculi may be obscured by overlying bony structures, by gas and intestinal contents, and by improper technique in centering, exposing or developing the film. To be satisfactory the film should be centered on the iliac crest and should include a portion of the symphysis as well as the upper poles of both kidneys. Often the lower ureters are excluded from the film by poor positioning and calculi in this area are missed.

Occasionally we obtain by mail a jacket of pyelograms for interpretation and find that a plain film, made prior to injecting the media, was not obtained. This is always unfortunate, since calculi are most apparent on the plain film.

An excretory urogram should be made to ascertain the degree of obstruction and dilatation produced by the calculus and to estimate the condition of the opposite kidney. A cathartic should be given on the preceding day to eliminate intestinal markings. Food and liquids should be withheld for 8 to 12 hours prior to examination to reduce bowel shadows and improve renal concentration of the iodide media excreted in the urine. Thirty cc. of Hypaque are injected slowly intravenously, using a No. 25 needle. External compression is applied over the bladder area to enhance the filling of the ureters and renal pelves. Often shadows which are thought to be calculi are proven by the urogram to lie outside the ureter, being phleboliths.

---

†From the Department of Urology, Baptist Memorial Hospital, Memphis, Tenn.

Cystoscopy and ureteral catheterization are usually not necessary to make the diagnosis and should not be attempted by one inexperienced or only casually acquainted with these procedures. We have recently seen two patients who underwent cystoscopy and "prodding" of the lower ureter in their local hospitals. This did not remove the calculus and made later cystoscopic manipulation difficult because of the local edema and irritation.

IMMEDIATE TREATMENT

To relieve acute ureteral colic, atropine should be combined with the narcotic of choice. Atropine will allay nausea and relax smooth muscle spasm of the ureter. Later, oral antispasmodics such as probanthine or belladonna preparations may be of benefit.

The patient should be instructed to void into a glass container and watch for the passage of the calculus. Most are calcium oxalate, which are tan to brown in color and covered with sharp spicules. The calculus will fall to the bottom of the container and can be observed thru the glass. Straining the urine is less satisfactory because smaller calculi will adhere to the wall of the container from which urine is poured and will be lost.

COURSE OF THERAPY

The majority of calculi will pass spontaneously, particularly those under 0.5 cm. in diameter; therefore, a trial period for spontaneous passage should be observed. The length of time depends on whether the patient's pain, nausea and vomiting can be controlled. How long can a kidney be left obstructed before irreversible damage occurs? The exact answer is not known, but certainly should not exceed several months. Progressive hydronephrosis and hydroureter should not be permitted to occur.

There are three points of physiological narrowing of the ureter: at the ureteropelvic juncture, at the level of the iliac vessels, and at the ureterovesical juncture. A calculus may be delayed at any of these locations in its descent and still allow urine to bypass it, resulting in minimal symptoms and obstruction. Such calculi should be followed by films weekly and if no further progress occurs in two to four weeks, surgical intervention should be advised.

If pain, nausea and vomiting persist for 24 hours or more in spite of supportive measures, urological consultation and surgical relief are indicated.

UROLOGICAL THERAPY

Calculi which are less than one cm. in diameter located in the lower one-third of the ureter can usually be extracted cystoscopically. With the patient under anesthesia, catheters which carry a nylon basket or which can be formed into a loop are inserted beyond the calculus, which is engaged and extracted on withdrawal of the catheter. This technique is restricted for calculi in the lower one-third of the ureter and is successful in about 80 per cent of such cases. In the remaining 20 per cent the ureteral orifice has been dilated by the catheters or by ureteral meatotomy, eliminating this area of physiological narrowing and permitting spontaneous passage of the calculus within a few days. A few patients still will not pass the calculus and require further observation, a second attempt at cystoscopic removal, or open surgery. In our series, about 75 per cent of patients with ureteral calculi can be relieved by cystoscopic manipulation.

Many patients are disappointed to learn that calculi cannot be readily dissolved. While it is true that renal calculi can experimentally be decalcified by irrigating the renal pelvis with Suby's citric acid solution for days or weeks, the matrix of the calculus remains and becomes recalcified and the solution is too irritating to be generally useful. Only a few paraplegic patients who are chronic calculi-formers can be benefited in this manner.

Calculi located within the kidney pelvis or calyces should be removed by pelviolithotomy or nephrolithotomy. These are foreign bodies in the kidney which gradually grow and destroy renal parenchyma by promoting infection and obstruction.

Vesical calculi are secondary in nature and result from stasis of urine due to urethral structure, prostatic disease, neurogenic bladder or encrustation on a catheter or other foreign body. Such calculi can be removed by open vesicolithotomy or by transurethral crushing and evacuation of the particles. In addition to the litholapaxy the primary cause of the calculus should be corrected by transurethral prostatic resection or urethral dilatation, as indicated.

The Troublesome and Dangerous Diarrheas *

WALLACE MARSHALL, M.D.
Waterton, Wisconsin

During a long distance telephone conversation the other day with a former teacher of mine, I asked why dermatologists, and also many allergists do not even apparently recognize the existence of the microcirculation. He replied that many of his colleagues do not know too much about the topic. This attitude on the part of some medical confréres is comparable to the ostrich who buries his head in the sand. How does one overcome such medical inertia? Any "hep" sales expert would reply that such can be accomplished through repetition. One continues to bring up the topic constantly until at least a few medical confréres begin to think that the topic was really one of their own brain-children. So it is with the microcirculation, that forgotten or perhaps unadvertised part of the human anatomy of which so little is mentioned and still less is understood!

The microcirculation consists of those terminal veins and arteries which supply cells, tissues and organs. It is involved with the process of inflammation, for the meta-arterioles, capillaries, A-V shunts, and the like, become dilated markedly. Many important pathophysiologic events take place within these minute structures, and inflammatory edema is produced therein because of capillary vasodilation accompanied by increased capillary permeability, also increased venous pressure. This inflammatory edema, produced by the above pathophysiologic processes, is in reality the factor which forms the diarrheal response. Without such edema formation in the inflamed gut, diarrhea would not be produced. This diseased gut becomes waterlogged because of the edema formation, and the very closed proximity with the intestinal lumen allows this edematous discharge to occur from the erstwhile rather thin parenchymatous structure of the gut walls which become distended with this edematous fluid. This process, then, is our concept as to how the diarrheal response takes place due to inflammatory edema within the diseased gut walls[1].

It matters not what etiologic factor or factors damage the intestinal areas to produce the above phenomena. Such a cause can be of bacterial or traumatic origin. However, the results are similar, evidenced by a marked diarrheal response, because of gross dilatatory vascular changes in the walls of the involved intestinal areas. These changes are not infrequently limited to a "generalized increase in vascularization. The mucous membrane may be slightly thickened or at times denuded".[2] The marked loss of body fluid due to acute diarrhea in infants produces a marked disturbance in the water and electrolyte balance, which is perhaps the most serious trouble[3].

Since diarrhea is merely a symptom and in itself not a specific disease[4], the exact therapy for combatting the actual cause must be ascertained before this cause can be combatted properly with definitive therapy. French describes the following additional diagnostic procedures which are to follow the complete physical examination. These are 1) digital rectal examination, 2) sigmoidoscopic examination of the lower colon, 3) use of test meals to help investigate the gastric digestive process, 4) stool examination, with macroscopic and microscopic methods. French writes that "it is often impossible to distinguish sharply between the simple dyspeptic and the infective variety"[5] of acute infantile diarrheas. However, signs of toxemia are more evident with the infective types which exhibit also high temperatures and an epidemic prevalence of this form of diarrheal disease, which is known also by the name of acute intestinal indigestion, which "includes all cases of loose watery stools not caused by dysentery, sprue (celiac disease), cholera, cathartics, newborn epidemic diarrhea, T. A. B. viruses, etc."

Although this discussion is limited to consideration of the causes and the therapy for these acute infantile diarrheas, one must never lose sight of the fact that very similar inflammatory processes can and do occur in most every other portion of the human body and which produce the acute forms of edema. Perhaps the most striking examples of this phenomenon are witnessed with the formation of the acute, edematous allergies; even a rather isolated organ, such as the prostate in the adult male, can and does show very similar edematous changes. These findings have been described in detail by Ficarra and the writer[7]. Because of some unexplained reasons, many medical confréres in other fields have not seen fit to even mention these highly important microcirculatory, pathophysiologic changes which produce such acute edematous changes in their patients. In spite of previous attempts at describing the *modus operandi* of such massive edema formation in many diseases, few similar studies have appeared in the literature from other colleagues which relate about the deleterious effects, if any, which occur as the result of such overwhelming edema formations.

However, recently, Asboe-Hanson[8] focused attention to some of these deleterious effects which are caused by such edema. He found that tissue edema acts as a stimulus for most cell degranulation and the released mucopolysaccharide brings about primarily a mucinous organization of tissue water, secondarily a fibrous organization.

Marshall[9] demonstrated some time ago that repeated injections of human serum from himself and other indiviuals into his thigh areas produced fibrous masses which resembled early keloid formations. The presence of inspissated blood or blood serum welcomes the invasion of fibroblasts and results in the formation of fibrous tissue which partially replaces the edematous transudate. While we are discussing the effects of edema and subsequent fibrous tissue invasion of erstwhile normal tissues, the cause for the formation of retrolental fibroplasia, according to our concepts, might be given very serious consideration, while studying the pathophysiology of this serious ocular disease. Dilatation of these capillary vessels leads to edema formation and the subsequent invasion with fibrous tissue infiltrations. One might well state some pathophysiologic postulations which seem to bear out the author's contentions. These are: 1) infection and/or trauma produces dilated microcirculation which, in turn, causes 2) edema formation, which, if left untreated, or if not removed, produces 3) invasion of such anatomic areas with fibroplastic tissue. This cycle of events causes any viable, normally functioning area to become physiologically impaired permanently through replacement by connective or scar tissue. It matters not in what portion of the body such a change takes place. The results are the same, whether it occurs in cells, tissues, or in the whole organ.

Luckily such edematous invasions, as those which are found in diarrheal-producing episodes in the human gut, lose the edema through a diarrheal exodus. If such edematous fluid were held in the intestinal walls for a lengthy time one could certainly expect an invasion of fibrous tissue to occur with a resultant partial or total loss of its ability to function properly.

Pathologic Conditions

Diarrhea is produced because of inflammation in the intestines (enteritis)[10]. When an inflammation occurs in the large bowel, it is termed colitis; if the inflammation is confined to the small gut, it is called an enteritis, and it is usually catarrhal in nature. The acute form occurs because of irritating or indigestible foods, or from poisons in these foods or because of certain noxious chemical agents. The intestinal mucosal membranes become edematous and swollen. They exhibit a slimy exudate, and their walls are mottled with red spots. With severe inflammation, the entire walls can become inflamed and markedly hyperemic. The lymphoid follicles become swollen and the mucosa tends to slough, thereby forming shallow, tiny ulcerations. The mucosa and submucosa become markedly edematous and are infiltrated with round cells. The surface epithelium often becomes degenerated.

A Typical Clinical Picture

Children who have a typical "gastro-enteritis" of infancy show the following clear-cut syndrome which was described so lucidly by Patterson[11]: "a previously perfectly healthy child suddenly develops acute diarrhea and vomiting, with rapid dehydration, the skin becomes inelastic, the tongue furred and the fontanelle depressed; the stools finally consist of watery fluids. There is a low blood pressure (reading) and there are symptoms of general intoxication."

Experimental Group; Methods of Study

Thirty-six cases with acute infantile diarrheas, ranging from the age of two days to two years were treated in this series. In most cases it was impossible to determine the exact causative agent which produced these diarrheas, although each case was subjected to the usual routine laboratory studies.

Just as soon as each case was presented by the parents, each child received immediately one cubic centimeter of Kutapressin* intra-gluteally and was hospitalized as soon as possible.

No other concomitant therapeutic agent was employed, mainly because the sole physiologic action of kutapressin was being determined, and other therapeutic procedures would perhaps modify or complicate the clinical results. After each infant was hospitalized; the child was given subsequent injections of this material in one cubic centimeter amounts twice daily, and the usual procedures for diagnosing the specific etiologic agents were carried out, usually without much success.

Rationale of Therapy

It has been shown subsequently that kutapressin constricts the dilated microcirculations in those areas where inflammatory edema is present. Such comparable studies have been performed for various forms of disease where inflammatory edema constituted the main pathophysiologic finding[12,13,14]. In such disorders the microcirculation in these involved areas becomes dilated markedly. The venous pressure and the capillary permeability of these markedly dilated vessel walls produces the escape and the resulting transudation of the erstwhile vascular fluid which infiltrates adjacent tissue, thereby producing edema formation.

---

*Kutapressin is manufactured by the Kremers-Urban Company of Milwaukee from crude liver by a series of selective fractionation procedures.

In the cause of the acute infantile diarrheas, the toxins from infections or the noxious agents produce inflammation of the gut walls and the resulting marked edema outflow invades the involved gut and is dumped finally into the intestinal lumen, thereby producing the diarrheal flux.

This extreme exodus of intestinal fluid, caused by the severe diarrheal trauma or infection produces a marked risk of dehydration, due to this serious fluid loss. Paterson[15] considers dehydration as the most important symptom which is to be treated. He advocates replacement therapy by the oral, subcutaneous and the intravenous routes with the use of various fluids to make up this dehydration

In this study our approach was different. Rather than resorting to immediate fluid replacement therapy, our main objective was to stop immediately, if at all possible, this mass exodus of fluid rectally. The method we employed for this study was with the use of kutapressin, a microcirculatory constricting agent, administered subcutaneously or intramuscularly at the very earliest possible opportunity. Fortunately, we saw each of these tots with acute infantile diarrheas before they had become dehydrated sufficiently so that such replacement therapy had to be employed immediately. This was effected by constricting the markedly dilated and inflamed microcirculation of the intestinal gut through the use of kutapressin.

Therapeutic Results

There were two failures in our attempts to control the diarrheas of these patients with acute infantile diarrhea. We learned subsequently, because of later bacteriologic studies, that these two infants had paratyphoid fever which they had apparently received from their mothers, who were infected similarly.

The other 34 tots improved without incident. It was found that these diarrheal responses became checked soon after each infant received the initial dose of kutapressin. In these infants it was not necessary to resort to other therapeutic modalities in order to check the diarrheal flux. However, each child received the usual supportive therapy which followed the checking of these diarrheas, such as freely giving fluids orally. Twenty-six of these infants had concomitant vomiting prior to the institution of kutapressin therapy, but this vomiting subsided promptly as soon as the diarrhea became checked (reverse peristalsis?).

This study demonstrated that intensive and costly parenteral fluid therapy does not have to be resorted to if the child's diarrhea can be checked at the earliest moment before marked dehydration has occurred. In other words, the usual pathophysiological chain of events can either be checked or even reversed, so that the infant retains rather than loses such a large amount of fluid rectally, for it is this intense loss of body fluid which produces most of the subsequent pathology in these cases with acute infantile diarrheas. *Treat them immediately.* Although our series was very small, these findings were deemed to be of such prime importance as to have them described in detail at this time. It is hoped that other medical confréres will repeat this procedure with their own patients so that these and other findings can be subjected to further study and evaluation.

Summary

A new therapeutic approach for the control of and therapy for acute infantile diarrhea is presented. The intestines of these infants, so affected, exhibit inflamed intestinal walls, plus the production of inflammatory edema. This fluid forced its way into the adjacent intestinal lumen which it invades and thereby produces a marked diarrhea flux. The microcirculation of these gut walls becomes dilated markedly. Our therapeutic procedure centers around our therapeutic attempt to constrict the dilated gut vessels which thereby prevents the further formation of tissue edema and the subsequent diarrheal response which, in turn, produces marked dehydration. The vasoconstricting action on the dilated microcirculation of the gut prevents further edema formation and its production of the diarrheal discharge. Thirty-six patients were so treated, and 34 of these infants improved markedly with this sole, new therapeutic approach.

Madison at North Fourth Streets

REFERENCES

1. Marshall, W.: New concept of edema formation. Miss. Doctor, 35: 157, 1957.
2. Nelson, W. E.: Mitchel-Nelson Textbook of Pediatrics. W. B. Saunders Co., Phila., 1950, page 808.
3. Ibid, page 810.
4. French, H.: An Index of Differential Diagnosis of Main Symptoms. Williams and Wilkins Co., Baltimore, 1945, page 225.
5. Ibid, page 226.

INTERPRETING MEDICAL LITERATURE

STAFF OF REVIEW

JOSEPH P. MELVIN, Jr., M.D. .... Cardiology
Harvey F. Garrison, Jr., M.D. .... Pediatrics
JAMES D. HARDY, M.D., and STAFF, Department of Surgery,

CARDIOLOGY

RESULTS OF MITRAL COMMISSUROTOMY

F. H. ELLIS, JR., D. C. CONNOLLY, J. W. KIRKLAND, AND R. L. PARKER, *Archives of Internal Medicine,* Volume 102, page 928, December 1958.

These authors report their results on the first 131 mitral commissurotomies done on 120 surviving patients. Seventy-two and one-half per cent of this group either maintained an excellent result or continued to be improved to a measurable degree. Re-stenosis of the mitral valve occurred in ten patients, but six of these were improved after a second operation. Arterial embolization occurred in four patients in the postoperative period of observation, this incidence representing one-fourth of the preoperative incidence. The functional status of the patient prior to surgery, his age group, and his cardiac rhythm prior to surgery all play a role in the operative result, but by far the most important factor was the anatomic status of the valve itself prior to surgery. When the valve was pliable and competent, less than twenty per cent of the patients had a poor result, in contrast to a poor result in almost 50 per cent of those cases possessing an immobile valve (fibrotic or calcified) or significant regurgitation. By the present standards, it is recognized now that many of the early operations did not accomplish complete opening of the valve and it emphasized the extreme importance of opening the postero-medial commissure whenever indicated. The closed mitral commissurotomy still seems to be a procedure of choice, and only when some satisfactory prosthetic replacement for the valve is available will patients with calcified immobile valves with regurgitation become candidates for open heart repair with the use of extracorporeal circulation.

COMMENT: This article echoes the same theme prevalent in so many papers in the past few years concerning the evaluation and results of mitral commissurotomy, and it appears now that by far the most important factor determining operability in a case of mitral stenosis is not age, sex, possible pulmonary disease, associated valvular deformities, and the like, but the actual anatomic damage to the mitral valve itself. This might well have been predicted from the outset because of the obvious realization that commissurotomy is not a plastic operation but simply an attempt to reestablish, insofar as possible, the physical and physiologic hemodynamic state prior to the development of mitral valvulitis. Only when prosthetics are available can this most important factor be overcome.

THE POSTMITRAL COMMISSUROTOMY SYNDROME: A FOUR-YEAR CLINICAL, PATHOLOGIC AND SEROLOGY STUDY, ITS RELATION TO RESTENOSIS

Annals of Internal Medicine, Volume 50, Number 6, June 1959, Pages 1352-1339, by Phillip Lisan, M.D., Atilio Reale, M.D., and William Licoff, M.D., Department of Medicine, Rahnemann Medical College and Hospital.

The postmitral commissurotomy syndrome, a phasic recurrent fever recurring at variable times following mitral valve surgery, has been the object of much speculation concerning its identity with reactivated rheumatic fever. Other theores have suggested that this is an idiopathic pleuropericarditis or a hypersensitivity reaction from nonspecific antigens such as blood in the pleural or pericardial sacs postoperatively.

There is some evidence to suggest that the postmitral commissurotomy syndrome is a reactivated rheumatic fever. The temperature elevation is lowgrade and cyclic and is associated with myalgias or true polyarthralgias. It is accompanied by leucocytosis and an increase in sedimentation rate and, frequently, abnormal cardiac rhythms and conduction defects as evidenced by the electrocardiograms. In addition, radiologic followups suggest an actual increase in heart size and the pathologic confirmation is suggested by the discovery of Aschoff's nodules in the biopsied atrial appendages of these patients. In addition, there is a rather prompt response of these patients to salicylates and steroids.

Evidence opposed to this concept can point to the fact that exactly the same syndrome follows the operation on congenital heart disease. It frequently arises without any preceding streptococcal infection and is not prevented by adequate doses of penicillin given prophylactically. The authors of this article studied 78 individuals who underwent mitral commissurotomy, five males operated on for coronary artery disease and ten patients operated on for congenital heart disease. None of the patients who had mitral valve surgery developed restenosis of the mitral valve during the entire four-year study, even though twenty-one of these developed the postmitral commissurotomy syndrome. The one patient in the entire series who did develop restenosis did not manifest the postmitral commissurotomy syndrome after the first operation, thus justifying the statement that, from a clinical point of view, there is no justification to indicate reactivation of rheumatic fever as the explanation for this postoperative syndrome. It does not satisfy the classical criteria for rheumatic fever described by T. Duckett Jones and the authors believe that laboratory and seriologic studies and atrial appendage biopsies are of little value in diagnosis.

COMMENT: Certainly, if the postmitral commissurotomy syndrome was due to reactivation of rheumatic fever, a much higher instance of restenosis of the valve would be expected to occur in patients followed an adequate period of time after surgery. This does not seem to occur and, in my experience, there seems to be no long-time impairment of cardiac function as measured by the American Heart Association standards. I agree with the authors that biopsies of the auricular appendages, elevated white counts, sedimentation rate increases and fever are completely nonspecific responses and cannot be identified in any way with rheumatic fever. The arthralgias are never true polyarthritis, and the occasional increase in heart size and arrhythmias occurring during the postmitral commissurotomy syndrome are completely non-specific and, in my mind, in no way identifiable specifically with reactivated rheumatic fever.

BIGNESS NOT OUR BLESSING

The task before us is to safeguard the integrity of the individual within the modern state, and to immunize him from bigness, and in so doing continue to assure for us and our children the blessings of freedom and human rights.

We have found that experience is the most important asset that a person might have, and we believe that the governor's office should be filled with a person who has had that experience, and can take over the office with sincerity and dignity.

MARSHALL— (continued from page 73)

6. Davison, W. C.: The Complete Pediatrician. Duke Univ. Press, 1959, page 100.
7. Ficarra, B. J. and Marshall, W.: Acute benign prostatic hypertrophy treated with new microcirculatory constrictor. Brit. J. Clin. Pract. 12: 646, 1958.
8. Asboe-Hanson, Gustav: Tissue edema—a stimulus of connective tissue regeneration. Paper read at the Society for Investigative Dermatology at the Clift House, San Francisco, California, June 21-22, 1958. See Program Summary (19th Annual Meeting), page 9.
9. Marshall, W.: Fibromatous skin lesions produced by repeated blood serum injections in the human. Am. J. Surg. 69: 338, 1945.
10. Boyd, A.: A Textbook of Pathology. Lea and Febiger, Phila., 1956, page 135.
11. Paterson, D.: Sick Children. J. B. Lippincott Co., Phila., 1956, page 135.
12. Marshall, W., Kozelka, A. W., and Kuljis, D.: Rationale for vasoconstrictive therapy of inflammatory edema. Ariz. Med. 14: 11, 1957.
13. James, F., and Marshall, W.: Reactions to tetanus antitoxin: their etiology, prevention and treatment. S. D. J. Med. and Pharm. 11:46, 1948.
14. Marshall, W.: Causes for inflammatory edema and its modern therapy. J. Am. Inst. Homeo. 51: 97, 1958.
15. Paterson, D.: Reference (11), page 136.

HARDY— (continued from page 68)

to have had the mass removed.

Summary and Conclusions

1. Large goiters with substernal components should be resected before serious tracheal compression has occurred. Operative management may be desirable also for cosmetic reasons, sudden painful enlargement due to hemorrhage into the gland, fever due to aseptic necrosis in the gland, dysphagia, and the possibility of toxic or negative change.

2. The exclusion of toxicity in a large goiter with a substernal component can be difficult. The BMR and I_{131} uptake may be unreliable. The serum PBI level is frequently quite helpful if the patient has had no iodine containing compounds for a sufficient length of time.

3. A chest roentgenogram should be secured to determine the size and extent of the substernal component.

4. The usual thyroid collar incision will permit excision of perhaps the majority of substernal extensions of goiters. However, where the intrathoracic component is quite large a sternal splitting incision may be required. It is rare indeed that with such additional exposure a separate thoracotomy incision is needed.

5. With component endotracheal anesthesia even huge colloid goiters with large mediastinal components can be managed surgically with few complications and a very low mortality rate.

Medical School Miscellany

Cardiovascular research and training at the University Medical Center got a $26,000 boost in July when the Mississippi Heart Association announced 12 grants to medical school faculty members.

According to Dr. Rush Netterville of Jackson, MHA grants chairman, the current awards total the largest sum devoted to local research in the heart association's history.

Spread through eight different medical school departments, the money is portioned into 11 research grants of $2,000 each and provides $4,000 for the support of a cardiovascular fellow in the Department of Medicine. Dr. E. Rassekh has been named 1959 Fellow.

Individual awards are as follows: To the Anesthesiology Department, Dr. Leonard W. Fabian, chairman; for a study of the effect of certain inhalation anesthetics on maintenance of circulatory stability during hemorrhagic shock.

Department of Medicine, Dr. Thomas M. Blake, associate professor, to continue his investigation of the incidence and significance of intramural hemorrhage in atherosclerosis; Dr. Raymond F. Grenfell, clinical assistant professor, further support for a double blind study of treatment of hypertension using various oral and parenteral agents.

Department of Physiology, Dr. Berwind N. Kaufmann, associate professor, to investigate the effect of acute heart failure on the blood volume readjustments following infusions and hemorrhage in dogs; Dr. George Armstrong, Jr., associate professor, to explore cardiovascular reflex activity in the unanesthetized and in the anesthetized dog.

Department of Surgery, Dr. William A. Neely, assistant professor, continued support for his project on the effect of various anesthetic and preanesthetic agents on pulmonary ventilation and blood gases; Dr. Watts R. Webb, associate professor, to study cardiac responses to deep hypothermia.

Department of Biochemistry, Dr. L. L. Sulya, chairman, a continuation of his research into the excretion of aldosterone metabolites.

Department of Clinical Laboratory Sciences, Dr. Warren Bell, chairman, to evaluate the effects of Dicumarol on the coagulation mechanism.

Department of Pathology, Dr. Joel G. Brunson, chairman, to study experimental streptococcal cardiac lesions.

Department of Anatomy, Dr. W. Lane Williams, chairman, continued assistance for his work begun under a Minnesota Heart Association grant on the relation of the nature of dietary fat and choline to cardiovascular injury in mice.

Pharmacology Staff

Dr. Richard L. Klein and Dr. Arthur H. Briggs, both formerly of Vanderbilt University School of Medicine. were appointed assistant professors of pharmacology at the University Medical Center in July.

Dr. Briggs received his M.D. degree from Johns Hopkins University where he also earned his B.A. He interned at Vanderbilt and took internal medicine training there before becoming a research associate in pharmacology for the year prior to coming to Jackson.

Dr. Klein was an instructor in pharmacology at Vanderbilt after having been both a pre- and a post-doctoral fellow there. He was awarded his Ph.D. at Vanderbilt in 1957 after having received his B.A. and M.A. degrees at Hofstra College in Hempstead, N. Y.

Both young pharmacologists are occupied with cardiovascular research and have published papers to their credit on this subject.

Both are members of Sigma Xi. Dr. Klein also belongs to the American Academy for the Advancement of Science.

Dr. William Holland is chairman of the pharmacology department, having succeeded Dr. James Rice in January.

THE MISSISSIPPI DOCTOR

The journal with a vision which encourages a plan of delivering modern medicine to the masses at less cost to the individual and more profit to the practitioner. It champions the community hospital, the hub around which this service must be built.

Entered as second-class matter, January 19, 1926, at the post office at Booneville, Miss., under the Act of March 3, 1870. Annual subscription, $3.00.

W. H. ANDERSON, M.D. .... Editor-in-Chief
MILDRED P. ANDERSON .... Assistant Editor

MID-SOUTH POSTGRADUATE MEDICAL ASSEMBLY

W. G. Stephenson, M.D. .... President
Chattanooga, Tenn.
Omar Simmons, M.D. .... President-elect
Newton, Miss.
David E. Stewart, M.D. .... Vice-President
Brownsville, Tenn.
L. B. Otken, M.D. .... Vice-President
Greenwood, Miss.
C. G. Swingle, M.D. .... Vice-President
Marked Tree, Ark.
Thurman Crawford, M.D. .... Secretary-Treasurer
Memphis, Tenn.

Mid-South Associate Editors
H. King Wade, M.D. .... Hot Springs, Ark.
Frank M. Acree, M.D. .... Greenville, Miss.
R. L. Sanders, M.D. .... Memphis, Tenn.

MISSISSIPPI STATE MEDICAL ASSOCIATION

Stanley A. Hill, M.D. .... Corinth
President
G. Swink Hicks, M.D. .... Natchez
President-elect
Wm. E. Lotterhos, M.D. .... Jackson
Secretary
Rowland B. Kennedy .... Jackson
Executive Secretary
Wm. M. Dabney, M.D. .... Crystal Springs
Louis F. Rittelmeyer, M.D. .... Jackson
State Associate Editors

The Publication Committee is not responsible for the authenticity of opinion or statements made by authors or in communications submitted to this journal for publication. The author or communicant shall be held entirely responsible.

Address all material for publication to W. H. Anderson, M.D., 30 West Church Street, Booneville, Mississippi.

RHODE ISLAND ANSWERS

Rhode Island comes up with the following rebuttal to state subsidization of the hospital and surgical care costs of social security beneficiaries:

"We believe that the Congress can best aid all citizens, and particularly those in the older age category, by halting the inflation which, as the President noted publicly recently, is a 'robber and a thief that takes the bread out of their (older persons) mouths, the clothes off their backs, and it limits their access to the medical care and facilities they need.'

"We believe that our common efforts must be directed toward developing programs for keeping elderly people well and productive through proper health maintenance and proper living. A healthy elderly person, with the assistance of voluntary prepayment health plans, will not only be in a position to purchase a major portion of his health care needs, but, in our opinion, he will want to do so because of the maturity and wisdom through living experience that has given him increased years of life."

WE MUST SOLVE IT AT HOME

The care of the aged, especially the aged who are sick, is a big challenge to human society. In this problem the medical profession has its responsibility—not all but a part. Dr. M. Q. Ewing of Amory discussed this problem at the Northeast Medical meeting in Tupelo. He did a good job of it and showed that he had put time and thought on the subject. The answer is not yet and will not be for some time. But we must make a start.

There was a time when the old people were taken care of, the most of them, at home by their own people. But now, times have changed and things are different.

By applying the principle of insurance on a comprehensive scale and collecting contributions from all of us all the time, we thought that we had enabled people to look after themselves when they fall sick, become unemployed, or grow old. But the end apparently is not yet . . . if we turn the problems of the aged over to the national government. Our old people need acceptance by the community; and the community can use their experience and know-how. And doctors should provide medical care they can afford.

HOSPITAL SYSTEM PAYING DIVIDENDS

Every third person in the state was directly served by Mississippi hospitals in 1958. This statement was made by Foster L. Fowler, Executive Director of the Commission on Hospital Care following completion of work on the 1959 revision to the Mississippi State Plan for Construction of Hospitals and Related Facilities.

The survey shows that, in 1958, 277,341 persons were admitted as patients to short-term general hospitals, and 5,748 to long-term hospitals which includes chronic disease hospitals, mental institutions, and the tuberculosis hospital at Sanatorium. In addition, the outpatient services of Mississippi hospitals accounted for 484,705 visits from ambulatory patients to their emergency rooms, for laboratory examinations, for x-rays, for physical therapy or other procedures not requiring admission as bed patients. Nursing homes within the state served 951 admissions during the year in addition to the carry-over from the preceding year which is always high for these long-term institutions.

The survey shows that there are 6,484 beds available in Mississippi short term hospitals as contrasted with 4,232 in 1946, an increase of 62.2 per cent. Admissions increased during this period from 116,863 in 1946 to 277,231 in 1958. There are 6,753 beds in long term hospitals assigned as follows: mental 5,938, tuberculosis 650, and other chronic illness 165. Available within the state are 1,359 beds in nursing homes.

CHARGE FOR TELEPHONE CALLS?

By ADRIAN H. SCOLTEN, M.D.
Portland, Maine†

In *Medical Economics* a Maine physician recently made a strong plea for charging patients for telephone calls. He stated in an article in this medical magazine that charging for telephone calls worked out well in his experience and it made his life less burdensome. To me, at least, he gave the impression that he believes that physicians are too soft-hearted, and too charitable.

I am an M.D. practicing dermatology in Portland, Maine, and therefore wish to apologize for the smug commercialism shown by this Maine doctor who through *Medical Economics*, a magazine read by many M.D.'s throughout America, has attempted to spread the impression that Maine doctors do not have the dedication or idealism that M.D.'s everywhere in America SHOULD have.

All patients should have a green light to their doctor and no charge or other roadblocks should be set up to keep the mothers or anxious patients from telephoning him and getting his personal attention. There are too many middlemen between patient and doctor and one of them is the doctor's secretary.

Twenty-five or thirty years ago no M.D. would dare write as this Maine doctor did and to his credit is the fact that he did not use his own name. I therefore do not know his identity and believe he is secretly ashamed of his self-interested and uncharitable stand.

I regret to see any doctors become like some hardhearted businessmen and our overpaid Blue Cross-Blue Shield and voluntary insurance executives. Blue Cross-Blue Shield, I am sure, has introduced unnecessary middlemen and has created more problems than it has solved. Self-interest usually guides those who promote it so strongly. The altruism of medical men must not be supplanted by the mercenary consideration or business practices that so often guide insurance men.

When it does it is high time we try to put our standard of medical conduct back where those who went before us placed it. Years ago no doctor ever cared about being rated a good business man.

American medicine became a great and grand profession because *they put the patient first*, not their own convenience, or their own pocketbook. In those days no public relations men or business advisers put good doctors on wrong roads. The rules of conduct of an insurance executive were not their guideposts.

The doctors of the past were on a pedestal in the public's opinion because *they deserved to be there*. They lived to serve and they observed strictly the Oath of Hippocrates and the Code of Medical Ethics which was inexcusably revised by some of our representatives in the House of Delegates of the American Medical Association recently. We should get our number of M.D.s whose conduct is questionable or needs revision down to an irreducible minimum. In all walks of life we must set a better example in a materialistic, selfish, and corrupt world.

The public did not get billed for telephone calls, cancelled appointments, nor were they sent to free clinics by the truly great physicians of the past and none were told to take out insurance so the surgeon or obstetrician or other doctor could get paid. The public is still getting this good "old-fashioned" treatment from most of the doctors practicing today. They get it without fail from the many "unbusinesslike" older doctors who don't want any middlemen between them and their patient, and who die without leaving an estate of over $10,000. They, like the preachers, priests, and many teachers, go about doing good all their lives without regard for the financial return.

---

†Dr. Scolten, a commissioned officer in World War I, was stationed at Camp Shelby, Mississippi. He is a fellow of American Association American Academy of Dermatology and Syphilology, and American College of Allergists.

All of us should read our Bibles more and we should be less self-interested. Too many doctors, especially the younger ones of today, conduct their profession like a business. If they wanted to become rich men they should not have become physicians.

Commercial interest does not guide the true physician, and there are many thousands of these men in America. They believe it is a privilege to be an M.D. and they go about daily doing good, giving of themselves gladly and generously, showing a heart as well as a well-trained medical mind.

KEEPERS

Albert Schweitzer voiced the philosophy some years ago that we are the keepers of our way of life. We can control our civilization, but only through the individual mind, not through the irresponsible forces of mass thinking and the mass illusions of false progress. To retain our blessings we must recognize the rights and duties of the individual in choosing between good and evil. We must exercise our personal responsibility in the realm of faith and morals. *The fundamental question we all must ask is not whether the proposition is promising or comfortable, but whether it is right or wrong.*

MATERNAL DEATHS REDUCED

Data just released by the Division of Public Health Statistics show that maternal deaths in Mississippi were reduced 30 per cent the past year. During 1958 there were 53 maternity deaths as compared to 75 the previous year.

Dr. A. L. Gray, the state health officer, attributed the dramatic reduction to the fact that increased numbers of maternity cases are receiving physician and hospital care and that midwifery is rigidly supervised by the Board of Health.

In 1957, 68.3 per cent of all the live births were attended by physicians in hospitals in contrast to the picture in 1940 when 49.8 per cent were attended by midwives or some untrained person, stated Dr. Gray.

OBVIOUS

We are now realizing that the greatest pressure for socialized medicine is likely to build up among the elderly if they are deprived of adequate medical care because of doctor and hospital bills beyond their means.

CORINTH—NESTOR OF PRESIDENTS

Dr. Stanley and Dr. J. R. Hill

Dr. Stanley Hill of Corinth is now president of the Mississippi State Medical Association. A few years ago, 1935-1936, his father, Dr. Jim Hill, served as president. Corinth also furnished a president of the State Association long before this. Dr. J. M. Taylor was president from Corinth in 1873-74. A native of Jackson County, Georgia, Dr. Taylor was a Civil War veteran, lived several years in Rienzi, the early home of Dr. Gus Street of Vicksburg. Rienzi was also the home of Mr. Curlee, originator of the famous Curlee Clothing business of St. Louis.

The Street and Taylor families were important names in the building of Rienzi, Booneville, and Corinth. Dr. Marcus Taylor of Booneville married the daughter of Dr. Crawford W. Long. After his death she and her sister lived in Booneville for many years.

Another Alcorn County man served as president of the Mississippi State Medical Association in 1898-99. This was Dr. C. Kendrick, Physician, educator, and legislator. He was born in Hardin County, Tennessee, in 1852. He was a graduate of the Louisville School of Medicine where he won the faculty medal in a class of two hundred and fifty. During his years of practice he served as president of the State Medical Association, a term in the state legislature, and as a member of the State Board of Health. He also served as trustee of the University of Mississippi.

UT OFFERS COURSES

Eleven postgraduate courses for physicians will be offered by the University of Tennessee College of Medicine in Memphis, Tennessee, beginning in September and continuing through next July.

The courses and the dates they will be offered follow:

Radiology, September 14-18, 1959; Trends in Cardiovascular Surgery, October 21-23, 1959; Ophthalmology, October 28-29 1959; Allergy, November 5-6, 1959; Conference on Steroids, November 13-14, 1959.

Obstetrics and Gynecology, February 24-26, 1960; Anesthesia for the General Practitioner, March 17-18, 1960; Recent Advances in Pediatrics, March 30-April 1, 1960; Psychiatry for the Family Physician, May 4-6, 1960; Fractures and Dislocations, May 18-20, 1960; and Tumors — Diagnosis and Treatment, July 27-29, 1960.

For further information write Wallace Mayton, Director of the Postgraduate Department, 62 South Dunlop, Memphis 3, Tennessee.

MID-ATLANTIC MEETING OF ICS

The Mid-Atlantic meeting of the International College of Surgeons will be held at the Homestead Hotel, Hot Springs, Virginia, on November 16, 17 and 18. The profession is cordially invited to attend.

DOCTORS' NURSES ORGANIZE

The membership of the old American Registry of Doctors' Nurses has been assumed by a new non-profit association, the American Association of Doctors' Nurses, which has just been incorporated and has its headquarters in the American Building, Washington, D. C. The association has as its purpose to promote the welfare of its members, to elevate the standards and ethics of their profession.

In order to become a member, the doctor's nurse must be able to qualify as an experienced doctor's nurse. In addition to stating her qualifications, her application must be signed by a Doctor of Medicine.

The membership is composed of not only those whose experience has been entirely in doctors' offices, but also trained nurses and practical nurses who are now serving in doctors' offices. At present, there are members in forty-eight states, Puerto Rico, and the Republic of Panama.

The association will consist of state and local chapters which will elect delegates to represent them at all association conventions.

UNIVERSITY OF TEXAS LECTURER

The University of Texas Postgraduate School of Medicine announces the James J. and Una Truitt Lecturer for the year 1959 to be Paul Wood, O. B. E., M. D. (Melbourne, F. R. C. P. (London). Dr. Wood is director of the Institute of Cardiology, London, and is a member of the staff of National Heart Hospital, and physician-in-charge of the Cardiac Department, Brompton Hospital.

The distinguished guest lecturer from London, England, will present a course in cardiology at the Texas Medical Center, December 7 through 11, 1959.

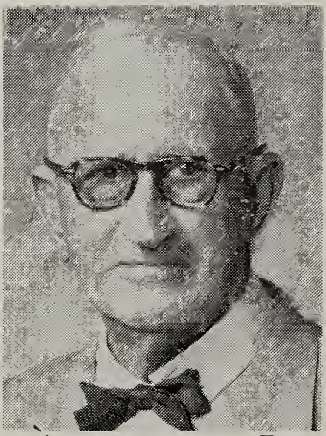
For further information write: Office of the Dean, the University of Texas Postgraduate School of Medicine, 410 Jesse Jones Library Building, Texas Medical Center, Houston 25, Texas.

WYETH SCHOLARSHIP

Dr. Charles W. Lewis, Murfreesboro, Tennessee, has been awarded a $4800 Wyeth Laboratories pediatric residency fellowship, which he will take at the University of Mississippi Medical Center, Jackson, Miss. He holds his B.S. and M.D. degrees from the University of Tennessee, and served two years with the U. S. Army Medical Corps.

Fifty-Year Biographica

FILO BARCLAY COATS



Filo Barclay Coats, son of James J. and Eliza Phillips Coats, was born January 1, 1882, at Thorn Hill, Alabama.

He was graduated from the University of Tennessee, Memphis, in 1911 and soon after graduation located at Hardy where he has continued to practice.

For many years, Doctor Coats served as registrar of vital statistics. He also attended postgraduate courses at Tulane University, New Orleans.

Always interested in his fellowman, Doctor Coats has served his neighbors and the people in his community faithfully and well and has brought honor to himself and the profession as a practitioner of medicine for fifty years and has had bestowed upon him lifetime membership in the Fifty-Year Club.

DEATHS

DR. W. N. REED

Dr. Woodie N. Reed, Sr., chief of staff and former superintendent of Gilmore Sanitarium in Amory, where he had been leading physician for many years, died June 30, at the Baptist Hospital in Memphis. He was 82.

A native of Itawamba County, where he practiced at Tilden, Dr. Reed had worked in his office Saturday morning then went to the Memphis hospital for a physical checkup. His condition grew worse and he died early Tuesday.

Born at Tilden in Itawamba County, he was a son of the late Dr. Madison Lafayette Reed and Mrs. Laduska Farrar Reed. After graduating in 1901 from Memphis Medical School, Dr. Reed took graduate work at Tulane University Medical School in 1907, and at Chicago Polyclinic in 1908.

He served as health officer of Itawamba County from 1908 to 1914 when he moved to Amory. In Amory, Dr. Reed was local surgeon for the Frisco Railroad from 1914 to 1928 and was division surgeon for the railroad from 1918 until 1952. He was superintendent of Gilmore Sanitarium in Amory during World War II, and was chief of staff there at the time of his death.

Dr. Reed was a past president of the East Mississippi Medical Society, a member of the Monroe County Mississippi, Southern and American Medical Associations; a charter member and past president of Amory Kiwanis Club; an elder of the First Christian Church, serving as chairman of the board many years; and served on the city school board two terms.

He was married in 1909 to Miss Luna Walker, who died in December, 1958.

Dr. Reed leaves a son, Woodie N. Reed, Jr., vice-president of Citizens State Bank in Tupelo; a daughter, Miss Mary Lewis Reed of Amory; two brothers, Rex Reed and Kip Reed of Tupelo and a sister. Mrs. C. C. Harrison of Fulton.

DR. V. N. NICHOLS

Dr. Virgil Newton Nichols, 84, beloved resident of Carson, died at the Jefferson Davis County Hospital after an extended period of declining health, and three weeks of hospitalization.

Dr. Nichols, who was an active, practicing physician until ill health forced his retirement, served with the rank of major in the Medical Corps during World War I, was a member of the Masonic Order, and Order of the Eastern Star, member of the Baptist Church, and a member of the Mississippi State Medical Association. He was graduated from the Memphis Medical School in 1904. He was held in high esteem by all who knew him.

He is survived by his wife, the former Miss Mary Worthy; and five sisters.

One disease after another has been whipped during the last fifty years in the victorious march of medicine. Smallpox, rabies, typhoid fever, diphtheria, and tetanus have yielded to vaccination. We have the means to control polio, but we are not doing it. The last few months have produced a big increase over last year.

Polio causes much anxiety and crippling. It is tragic, expensive. It is most unfortunate that we are not using the means we have to stop polio. This is a responsibility of the people as well as the medical profession. Doctors, public health personnel, and the mothers of children should not be satisfied until every person under forty has the Salk vaccine. Practicing physicians can not shun their responsibility in this exigency.

Metropolitan Laboratories, Inc.

Metro Injectables
A NAME YOU CAN TRUST
TRADEMARK
Pharmaceutical Chemists

Mer-Caine

Oxamal

Trabex

Cobex

NAT R. MAYOZA - - COCKRUM, MISS.

THE
WILLIAM LEN
AT MAIN & MONROE
IN THE CENTER
OF THE SHOPPING
& THEATRICAL DISTRICTS
RATES $ 3.50
FROM
FAMILY- RATES
Children under 14 FREE
NEWEST
HOTEL IN
MEMPHIS
250 ROOMS & BATHS
Coffee Shop Seating
300 - Circulating
ice water & T.V.
in every room
AIR CONDITIONED
HOMELIKE ATMOSPHERE
FOR RESERVATIONS
JACKSON 6-6441
CONTACT K W NEWMAN MANAGER

MISSISSIPPI *General Discount Corporation*

invites

. . . the physicians and dentists of Mississippi to avail themselves of the benefits of its professional credit - loan plan.

Designed with the doctor and patient in mind it provides a dignified credit plan to ease the burden of major medical and dental expenses — assuring the doctor prompt payment for his professional services and providing a budget payment plan for the patient.

Confidential details of the plan are available from the manager of any of our branch offices, operating as:

SOUTHERN LOAN CORPORATION

MART - 51
JACKSON

DELTA MART
JACKSON

130 S. FARISH STREET
JACKSON

MERIDIAN
2209 8TH ST.

ABERDEEN
BIG STAR BLDG.

AMORY
NORTH MAIN ST.

Other offices will be opened throughout Mississippi in 1959. This is a Mississippi enterprise — owned by Mississippians — operated by Mississippians.

PARENT COMPANY

Mississippi General Discount Corporation

130 SOUTH FARISH STREET, JACKSON, MISS.
PHONE — FL 2-1602 or FL 3-5111

CIRCULATES AFTER

The MISSISSIPPI Doctor

M.S.M.A.

THE MISSISSIPPI DOCTOR, SEPTEMBER, 1959

NO. 4

THE SPIRIT OF PEACE

IF THERE is righteousness in the heart, there will be beauty in the character. If there is beauty in the character, there will be harmony in the home. If there is harmony in the home, there will be order in the nation. Where there is order in the nation, there will be peace in the world.

In This Issue

OVARIAN CYSTECTOMY FOR BENIGN DERMOID CYSTS
Phil G. Schreier, M.D. and Albert Alexander, M.D.

CLINICAL CLASSIFICATION OF THE CAUSES OF JAUNDICE
J. R. Snavely, M.D.

THE CURRENT STATUS OF HEART SURGERY IN INFANTS AND CHILDREN
Watts R. Webb, M.D., and James D. Hardy, M.D.

THE MENTALLY RETARDED CHILD
Robert G. Jordan, M.D.

RETROPERITONEAL RUPTURE
Richard J. Field, Sr., M.D., S. E. Field, Sr., M.D., and Richard J. Field, Jr., M.D.

NOW SHE CAN COOK BREAKFAST AGAIN

...WHEN YOU PRESCRIBE NEW

MORNIDINE™

(BRAND OF PIPAMAZINE)

A new drug with specific effectiveness in nausea and vomiting of pregnancy, Mornidine eliminates the ordeal of morning sickness.

With its selective action on the vomiting center, or the medullary chemoreceptor "trigger zone," Mornidine possesses the advantages of the phenothiazine drugs without unwanted tranquilizing activity.

Doses of 5 to 10 mg., repeated at intervals of six to eight hours, provide excellent relief all day. In patients who are unable to retain oral medication when first seen, Mornidine may be administered intramuscularly in doses of 5 mg. (1 cc.).

Mornidine is supplied as tablets of 5 mg. and as ampuls of 5 mg. (1 cc.).

G. D. Searle & Co., Chicago 80, Illinois. Research in the Service of Medicine.

Ovarian Cystectomy for Benign Dermoid Cysts

PHIL G. SCHREIER, M.D.† and ALBERT ALEXANDER, M.D.†
Memphis, Tenn.

WITHIN THE PAST FIVE years it has become our good fortune to become familiar with a very interesting and rewarding surgical procedure by which we can save ovaries appearing to be completely replaced by large dermoid cysts.

Forty-one years ago Victor Bonney, the eminent British gynecologist, first noted a very definite and easily located plane in ovarian cystic teratomas (dermoid cysts) between the ovarian stroma and the capsule of the cystic mass. He further noted that this thin layer of ovarian tissue which completely encapsulates every benign cystic teratoma had all the functional capacities of ovarian tissue. The tissue had characteristic stroma and primordial follicles. In fact, it is the stretched out ovary. These two facts were of the utmost importance to Bonney for he might be considered a radical conservative where the ovaries and the uterus of a young woman were altered by disease. He found that in cystic teratomas regardless of the size, if unaltered by infection or compromise of blood supply as in the twisted cyst, they could easily be completely shelled out of their ovarian nests. Then the remaining thin sheet of ovary could be folded, sutured, and replaced in its normal position to be relied on in the future to carry out normal function.

To Bonney this seemed a rather simple discovery, worthy of only passing consideration with one's associates. However, further investigation then, as now, revealed a tragic number of bilateral oophorectomies performed on young women because of benign dermoid. In Dr. TeLinde's latest edition of "Operative Gynecology[1]," he eluded to the problem in the following manner: "When the dermoid cysts appear at a very early age and are bilateral, they constitute one of the tragedies of gynecologic surgery." That Bonney's technique has not been more widely disseminated is difficult to understand, and may well be explained by Bonney's words concerning the universal use of new surgical procedures. "That it is not yet so, may be partly the fault of those who advocate them; too little faith in some, and, here I suspect I indict myself, too much emphasis in others."

In 1946, when Bonney published his monograph "Extended Myomectomy and Ovarian Cystectomy[2]," he could report his experience in 301 cases in which he had resected benign cysts of all varieties, including cysts as large as 20 pounds. He anticipated skepticism by including the record of long follow-ups of regular menses, subsequent pregnancies, no mortality, and no development of subsequent cyst connected with the infolding of the external ovarian surface. (Four per cent of patients did develop subsequent ovarian cysts but all of these were in connection with resection of cysts associated with endometriosis.)

Since benign cystic teratomas make up over 11 per cent of all ovarian tumors, and since the incidence of bilaterality is somewhere between 15 and 25 per cent, this concept is worthy of the most serious consideration.

This paper deals with the first 16 cases of ovarian resection on whom we now have a follow-up of two years or more. In addition to these, our experience includes 15 additional patients on whom the follow-up is of shorter duration but equally satisfactory.

TYPE OF CASES

Of these cases, seven were nulligravid or had questionable early abortions in the past, and nine were multiparas. In 14 of the 16 cases, there was some type of bilaterality. Eight had bilateral dermoids, four had had previous unilateral oophorectomy for a dermoid and presented themselves with a dermoid in the opposite ovary. Two had a benign cyst of another variety in the opposite ovary. In only two cases could the opposite ovary be considered entirely normal. Multiple dermoids in one ovary were found in two cases. Operation was considered indicated in five pregnant patients because of sizable cysts causing pain or dystocia. Two of these subsequently aborted in the first trimester. The other three patients in this group were in far advanced pregnancy, and the pregnancy was not disturbed because of the resection.

DIAGNOSIS

The presenting complaint of these patients was quite variable. All were women in the childbearing age. Five were entirely asymptomatic as far as the adnexal disease was concerned, the ovarian cyst being found on examination for other causes. Abdominal pain was the primary complaint in six cases, one of whom complained entirely of dysmenorrhea. One patient noted only an enlarging abdominal mass. Two of these were found following early abortions, three at routine antepartum examination, and one was found at the time of repeat cesarean section. An extraperitoneal section, after neglected labor, had been performed on this patient 14 months previously hence the ovaries had not been observed, nor was there any adnexal enlargement recognized postoperatively or during prenatal observation. At the time of the repeat elective section, an eight centimeter mass was found on the left and a five centimeter one on the right; both were dermoids. X-ray was confirmatory or suspicious in 10 of the 16 cases showing either characteristic calcification or the very suggestive haziness seen representing intra-abdominal fat mass. In the three cases in which x-ray was not suggestive, two were far advanced pregnancy, one at full term and one at six months. X-rays were not taken in three cases.

---

†From the Division of Obstetrics and Gynecology, University of Tennessee College of Medicine, and the City of Memphis Hospitals, Memphis, 1959.

TECHNIQUE

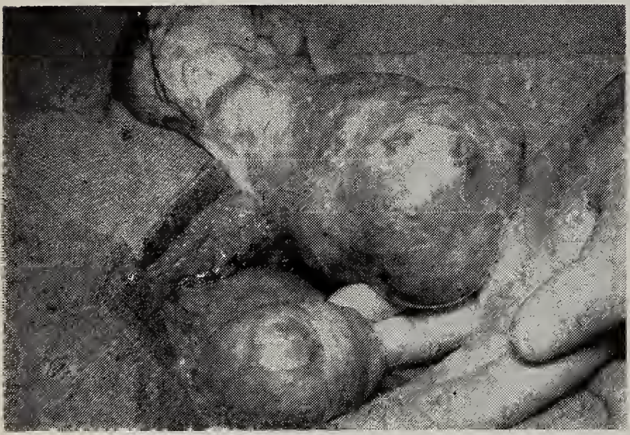


Fig. 1. Bilateral dermoid cysts. Both ovaries can be salvaged.

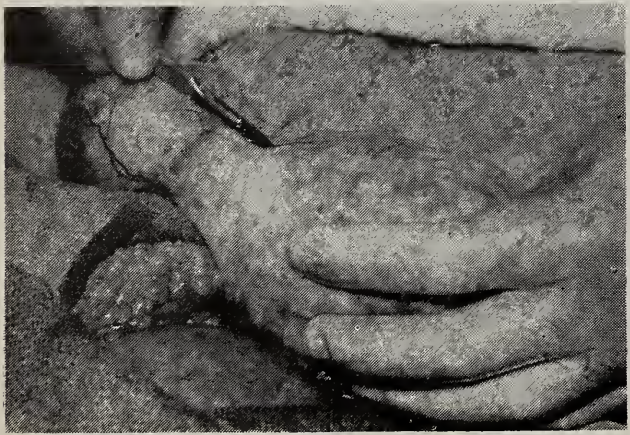


Fig. 2. Primary incision is made at a point most distal to the hilus. The incision is made through the ovarian capsule only.

If there are bilateral dermoids present, (Figure 1) it is usually best to attempt resection in the larger or more difficult cyst first. Always plan to resect both cysts for if the worst appearing ovary is removed, one may not be successful in resection of the smaller cyst.

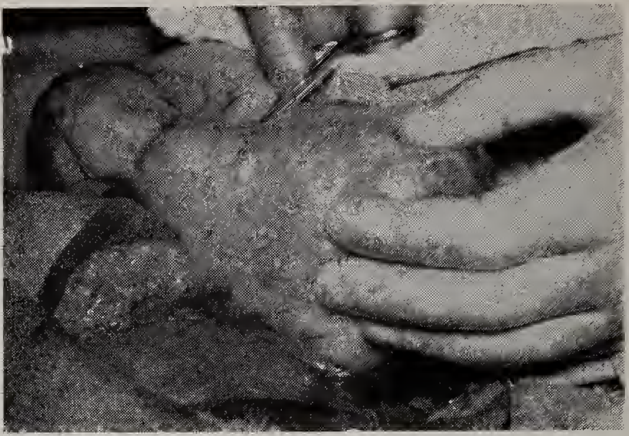


Fig. 3. Matzenbaum scissors are inserted beneath the thin sheet of ovarian tissue and spread so as to begin the dissection.

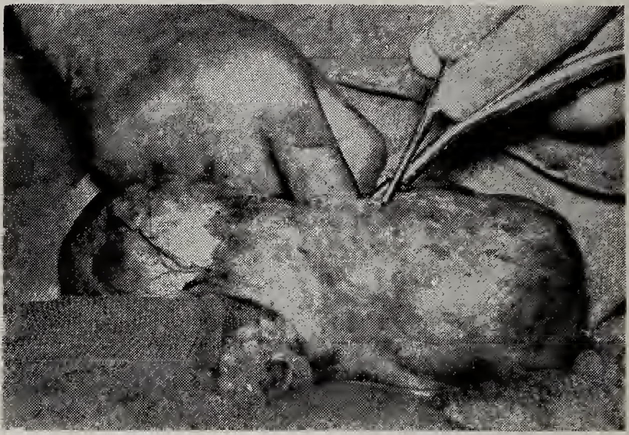


Fig. 4. The index finger can be used effectively to separate the ovarian tissue from the cyst wall.

Begin the resection at a point most distal to the hilus (Figure 2), for in the hilar area will be encountered the most difficulty with vascularity. Attempt to save all the ovarian tissue. After resection, if the capsule of the ovarian tissue has been torn or is not salvagable then this may be trimmed away.

The original incision is made with a sharp scapel just through the thin ovarian capsule. This may be no thicker than peritoneum and is a most important incision. This incision should be made parallel to the bipolar diameter of the ovary.

Matzenbaum scissors (Figure 3) may then be inserted beneath this thin sheet of tissue and spread so as to begin the dissection.

When a large enough area is dissected (Figure 4) the moistened index finger is inserted and with atraumatic dissection the cyst can readily be partially shelled from its ovarian bed.

As the under surface of the cyst is approached, it may be advantageous to use a small, wet sponge to separate the cyst wall and the ovarian shell. Bleeding should be controlled as it is encountered. If the cyst ruptures during excision, aspirate the material as completely as possible; the cyst will

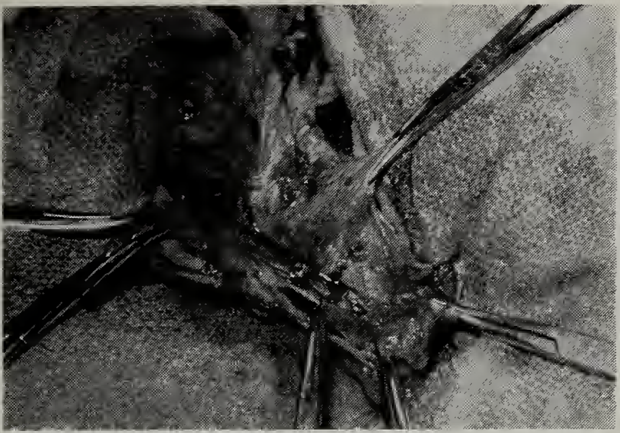


Fig. 5. The ovarian shell is inspected after the cyst is removed.

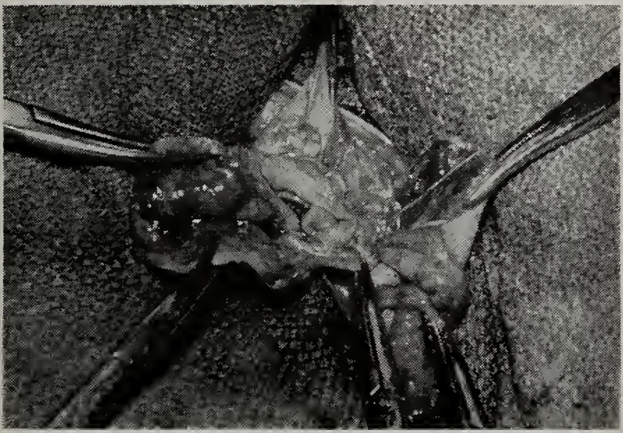


Fig. 6. One-half of the reconstruction of the ovary is completed.

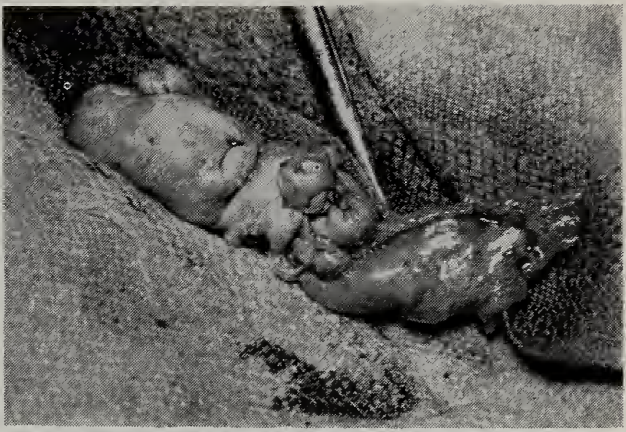


Fig. 7. The completed ovarian reconstruction. It is now approximately the size of a normal ovary.

frequently be multiloculated so only one area may be involved and collapse. Then the moist lap packs which have been protectively placed about the ovary can be changed and the operation continued with very little spillage of the cyst fluid. This minimal hazard does not contraindicate the procedure, or justify being blindly radical.

After the cyst is removed from its ovarian bed, the remaining ovary should be carefully inspected (Figure 5). Very often there will be more recognizable ovarian tissue around the hilus than had been originally suspected or detectable, and this is a very deceptive situation. Trim away any ragged tissue to which the blood supply has been completely interrupted. One half of the ovarian shell, that is on one of the lateral sides of the hilus, can then be folded, raw surface to raw surface, and tacked with chromic GI suture, which further effects hemotasis (Figure 6). The result is approximately the size of one half a normal ovary. The other side of the shell is done in like manner. These two halves of ovary are joined as in the technique for wedge resection of polycystic ovaries (Figure 7).

During the procedure, care should be taken that the Fallopian tube is not crushed or damaged, particularly at its fimbriated extremity.

PATHOLOGICAL REPORT

In all cases, sections taken from the encysting capsule showed typical dense ovarian stroma with multiple primordial follicles present (Figures 8 and

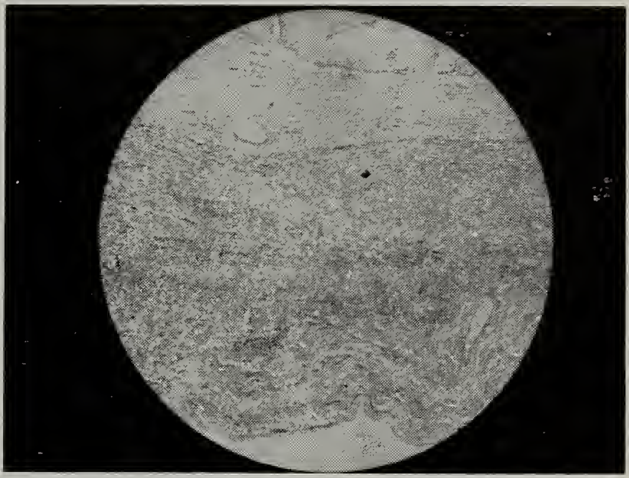


Fig. 8. Photomicrograph of the entire thickness of the ovary and cyst wall showing the ovarian stroma, the capsule of the cyst, and the sebaceous glands in the lining of the cyst.

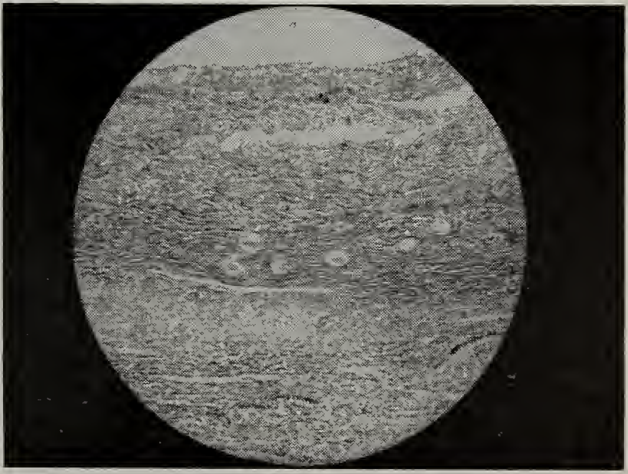


Fig. 9. A section of the ovarian shell showing dense ovarian stroma and numerous follicles.

9). In none of the dermoids was there any suggestion of malignancy. Malignant degeneration is reported as less than one per cent, and these are usually quite obvious and in patients past the childbearing age. The size of the cysts varied from five centimeters to 15 centimeters in diameter; the majority of which were approximately ten centimeters.

FOLLOW-UP

All cases have had regular menses following resection. Two patients have become pregnant following bilateral resection. None of the cases have developed subsequent ovarian enlargement, and at the six weeks postoperative examination, the ovary or ovaries have been palpable and normal in size.

SUMMARY

The history of the development of conservation of ovaries involved with cystic teratomas (dermoid) is related.

The technique of the resection of ovarian dermoid cysts as perfected by Bonney is described.

The first 16 cases from whom dermoid cysts were removed leaving normal functioning ovaries are reviewed.

CONCLUSIONS

We are not discouraged that today we cannot submit for your consideration a radically new operation, for it is often true that the method of dissemination of knowledge is sometimes as important as the original discovery.

It can now be said that the removal of an ovary in a young woman for an infected, non-twisted dermoid cyst, is no longer justifiable procedure.

REFERENCES

1. TeLinde, Richard W., Operative Gynecology, (2nd Edition, The J. B. Lippincott Company, Philadelphia. 1953) page 688.
2. Bonney, Victor, The Technical Minutiae of Extended Myomectomy and Ovarian Cystectomy, (First Edition, The Paul B. Hoeber, Inc., New York, 1946).

MARYLAND ASSOCIATION CONDEMNS VETERANS HOSPITAL PRACTICE'S

Medical and Chirurgical Faculty
of the State of Maryland
1211 Cathedral Street
Baltimore

July 24, 1959

W. H. Anderson, M.D., Editor
Mississippi Doctor
104 Hospitality St.,
Booneville, Mississippi

Dear Dr. Anderson:

The Medical and Chirurgical Faculty of the State of Maryland (Maryland State Medical Association) has, for many years, expressed concern over the inroads the Veterans Administration Hospitals are making into the realm of the private practice of medicine. In order to combat the fantastic growth of treatment of non-service connected ailments of veterans, the Faculty has passed many resolutions condemning this practice and urging that something concrete be done to curtail or stop this insidious growth.

The Faculty's House of Delegates at its 1959 Annual Meeting passed a resolution that all component medical societies of the American Medical Association be contacted and urged to support the Faculty's stand in this respect.

As a result of a letter sent to every A.M.A. component medical society, eleven answers have been received, all in the affirmative.

It is anticipated that other societies will also reply in the affirmative and that full support to this projected concerted action will be forthcoming from them as well.

I sincerely hope that you will see fit to publish this letter and alert your readers to the steps that are being contemplated along these lines, not the least of which is the hope that an appropriate resolution will be introduced in the A.M.A.'s House of Delegates at its clinical session in Dallas in December.

Sincerely,

Amos R. Koontz, M.D., Chairman
Committee on Veterans' Medical Care

Clinical Classification of the Causes of Jaundice *

J. R. SNAVELY, M.D.
Jackson, Miss.

TABLE I

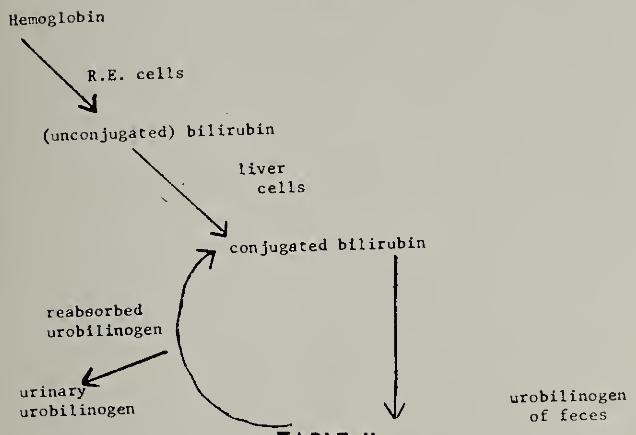


TABLE II

JAUNDICE

- A. Retention
    - 1. Overproduction (hemolytic)
    - 2. Faulty Conjugation
- B. Regurgitation
    - 1. Hepatocellular (nonobstructive)
    - 2. Obstructive
        - a. Mechanically obstructive
        - b. Cholestatic (cholangitic)

Recent advances in understanding the metabolism of bilirubin have provided a firm chemical basis for the differential diagnosis of jaundice[1],[2]. The ancient classification of Rich[3], with recognition of two mechanisms—retention and regurgitation of bilirubin, is as useful now as it was when first described many years ago.

It is necessary to review briefly modern concepts of the metabolism of bilirubin to orient ourselves in the interrelationships of hemoglobin, bilirubin, conjugated bilirubin, and urobilinogen. For convenience, intermediate stages are ignored, the conjugate is treated as though all were diglucuronide, and the urobilinogens are considered to be a single, aldehyde reacting entity.

With destruction of red cells normally from wear and tear, or abnormally because of noxious agents or structural defects, the tetrapyrrole ring of hemoglobin is opened in the cells of the reticuloendothelial system yielding bilirubin (the iron is conserved and used again). This native, or unconjugated, bilirubin by means of a series of complex reactions is conjugated to the diglucuronide in the liver cells and excreted into tiny bile capillaries lying scarcely visible unless they are distended between liver cells. This conjugation results in the formation of a readily water soluble ester of an insoluble tetrapyrrole and makes possible the excretion of bilirubin in the bile.

The conjugated bilirubin flows on past other actively secreting liver cells abutting on the bile capillaries, thence through a short connecting piece, the ductule, or ampulla, or canal of Hering, into the finest branches of the hepatic ducts, and on down into the bowel. Here a series of reactions in which bacterial enzymes participate results in the formation of urobilinogen, most of which is discarded in the stool as such, or oxidized to urobilin. A moiety of the bowel contained urobilinogen is absorbed, and re-excreted by the liver—the enterohepatic circuit of urobilinogen. Of this absorbed fraction, a small amount escapes re-excretion by the liver, and appears in the urine as the urinary urobilinogen.

Table I outlines this scheme of hemoglobin breakdown, and this scheme will serve as a framework for our classification of jaundice, only slightly modified from that of Rich.

As indicated in Table II there are two main categories of jaundice—one called retention jaundice in which the bilirubin piles up prehepatically as the unconjugated variety, and does not appear in the urine, being insoluble in water. Hence the term, acholuric jaundice—no "bile" in the urine. Hemolytic anemias, such as congenital spherocytic anemia and sickle cell anemia, as well as acquired varieties, are examples of overproduction retention jaundice. Recognition is not commonly difficult because of the usually only moderate depth of icterus, the normally colored stools and urine, and the evidence of anemia and rapid blood regeneration. Icterus neonatorum is an example of retention jaundice caused by defective glucuronide conjugation. Here it is believed "immaturity" of the conjugation mechanism is responsible for a transitory piling up of unconjugated bilirubin. Certain people, probably on a genetically-conditioned bias, lack partially the enzymes needed in conjugation, and are ultimately recognized as having "constitutional hepatic dysfunction" or Gilbert's disease. They are slightly and usually intermittently jaundiced, all of their liver function tests are normal, biopsy of the liver is negative, and health is unaffected. This entity is of importance mainly because it is confused with hemolytic disease or low-grade hepatitis, and may expose the patient to meddlesome surgery or other dangerous forms of treatment.

---

*Presented before the Section on Medicine at the ninety-first annual session of the Mississippi State Medical Association, May 12-14, 1959, Biloxi, Miss.

In all of these, the pigment in the serum is mainly of the unconjugated or indirectly reacting variety (requires addition of alcohol to develop color in the quantitative van den Berg test). The retention types of jaundice, while important clinically, ordinarily do not pose serious diagnostic problems, but the opposite is true of patients with regurgitation jaundice.

Here, pigment has been conjugated by the liver, and rendered water soluble in preparation for excretion, but has regurgitated back into the blood as a result of either obstruction, or of liver cell disease. The precise mechanism of this reentry to lymph and thence to blood is not known.

In mechanical obstruction, due usually to stone, cancer, or stricture, as pressure builds up and the ductal system distends, back-diffusion of conjugated bilirubin occurs, and it is believed that this occurs mainly at the ductule, or ampulla, mentioned previously.

In cholestatic icterus, rarely an expression of acute hepatitis or cirrhosis, but often resulting from certain drugs such as chlorpromazine or methyl testosterone, exactly the same type of back diffusion occurs in the absence of mechanical obstruction. In both situations, jaundice may be deep, bilirubin is mainly of the one minute direct variety (no alcohol needed for color to develop) and such indices to obstruction as the serum total cholesterol and alkaline phosphatase sharply elevated. Stools are light and urine deeply pigmented in proportion to the degree of regurgitation in either instance. Tests of "liver cell damage" such as the cephalin and thymol tests tend early to be negative.

The history may be extremely useful, or may contribute little. Obviously, a history of biliary colic militates for stone, previous gallbladder surgery raises the possibility of stricture or recurrent stone, and inexorable, progressive epigastric and back pain suggests cancer of the pancreas. Physical examination is not usually diagnostic, though occasionally a definitely palpable gallbladder yields strong evidence for obstruction due to cancer (Courvoister's law). The liver is almost always definitely to markedly enlarged when obstruction is caused by cancer, and failure to palpate this organ in the presence of deep jaundice with light stools and dark urine militates for hepatitis and against mechanical obstruction. Radiologic studies may reveal a stone, or evidence of a pancreatic mass, but more often are not helpful, yielding only negative data.

In patients with regurgitation jaundice due to hepatitis, the stools may be light, and the urine dark just as is the case with mechanical obstruction. This phase of regurgitation is commonly of short and self-limited duration in hepatitis, but bilirubin studies cannot be relied upon to effect a distinction from mechanical obstruction. Here indices to cellular disease, such as positive cephalin flocculation and elevated thymol turbidity tend to be present early, and indices to obstruction such as serum alkaline phosphatase tend to be only modestly elevated. A history of exposure, or of contact with blood or blood derivatives within an appropriate incubation period can be useful, and the characteristic prodrome of hepatitis, especially severe anorexia, may be diagnostically useful. The occasional patient with cirrhosis and an acute hepatotoxic exacerbation resembles chemically acute hepatitis, but the correct diagnosis is often suspected because of the more chronic history. Often an enlarged, hard liver, with spider angiomata, liver palms, and a story of alcoholism or chronic malnutrition are diagnostically helpful.

Thus four entities are responsible for most diagnostic problems in patients with jaundice. All four are varieties of regurgitant jaundice, with light stools and dark urine. They are:

1. Mechanically obstructive jaundice, due usually to stone, cancer, or stricture.
2. Cholestatic obstructive jaundice occasionally due to hepatitis, especially in the elderly, or more commonly due to certain drugs.
3. Acute hepatitis, most often caused by a virus, either the naturally transmitted or homologous serum variety.
4. Cirrhosis with acute hepatotoxic exacerbation.

Careful analysis of the data obtained by history, physical examination, and a few well-chosen, well-performed, and cautiously-interpreted liver function tests will usually result in accurate diagnosis and rational treatment.

REFERENCES:

1. Schmid, R.: Jaundice and Bilirubin Metabolism, A.M.A., Arch. Int. Med., 101:669, 1958.
2. Billing, B. H., and Lathe, G. H.: Bilirubin Metabolism in Jaundice, Am. J. Med., 24:111, 1958.
3. Rich, A. R.: The Pathogenesis of the Forms of Jaundice, Bull. Johns Hopkins Hosp., 47: 338, 1930.

The Current Status of Heart Surgery in Infants and Children

WATTS R. WEBB, M.D., F.A.C.S., and JAMES D. HARDY, M.D., F.A.C.S.
Jackson, Mississippi

An evaluation of the present status of cardiovascular surgery must include a survey of present surgical and diagnostic techniques, and present knowledge of the prognosis of the various cardiac abnormalities. All of these must be modified as they are applied to the younger age groups, particularly to infants, in whom the manifestations, prognosis and applicability of various techniques become quite different from adults.

HYPOTHERMIA

Reduction of the general body temperature from a normal 37 degrees C to approximately 30 degrees C has the advantage of reducing the metabolic oxygen requirement by 50 per cent. This allows circulatory arrest to be tolerated for 6 to 8 minutes without demonstrable cerebral or cardiac effects. At this temperature the problem of ventricular fibrillation is quite rare and related more to the cardiac lesion than to the hypothermia itself. The obvious disadvantage is that many cardiac lesions cannot be surgically corrected within this limited period of time. On the other hand· it does have many advantages, as it is much simpler than the pump-oxygenator, does not require large amounts of heparinized blood, does not require heparinization of the patient, and is easily applicable to all age groups. In addition, the surgical maneuvers required are much less complex, and require a much smaller team[1].

PUMP-OXYGENATOR

At least three satisfactory types of the pump-oxygenator are now commercially available, each of which has enjoyed an extensive clinical experience. The oldest is the bubble oxygenator, which is now available in disposable models of sterile plastic* which seem effective for limited volume flows. The vertical screen oxygenator as devised by Gibbon, and used extensively by the Mayo Clinic, and the rotating disc oxygenator, both of which expose a film of blood to an atmosphere of oxygen, have proved satisfactory. While these have proved able to provide adequate time to correct most intracardiac lesions, there are still definite limitations of time, so that perfusion is preferably limited to 30 minutes or less, though good results have been recorded after periods of over two hours The paramount weakness appears to be the damage which occurs to the blood with the destruction of platelets and fibrinogen. With more refined machines, this has become less of a problem· particularly with the availability of platelet transfusions, fresh blood postoperatively, and protamine or polybrene to neutralize the heparin postoperatively. Successful use of the pump-oxygenators in infants is much more difficult, particularly in maintaining proper blood balance between the machine and the patient.

PATENT DUCTUS ARTERIOSUS

This lesion is being recognized more frequently in the earlier age groups, and it is now generally accepted that all patent ducti should be divided as soon as found if symptomatic, and in the immediate pre-school age, if asymptomatic, as the surgery becomes technically much simpler in the older child. In this age group, the risk drops to less than 1 per cent.

COARCTATION OF THE AORTA

Surgical treatment for coarctation of the aorta has become a standardized procedure for the great majority of cases which demonstrate narrowing of the "adult" or post-ductal type, with the stenosis located just distal to the ligamentum arteriosum. The normal life expectancy of these patients is 32 years, and only one of ten lives past 50. The total accumulated hospital mortality averages 8.6 per cent, but in children operated before the age of complications, the mortality rate is less than 5 per cent (2). A few with longer stenosis may require a graft to bridge the resultant defect after excision of the coarctation.

Pre-ductal or "infantile" coarctation of the aorta is less common, but carries more serious implications. Most of these patients develop congestive heart failure early in life, and the correct diagnosis is frequently apparent only at autopsy, though it can usually be made soon after birth by the "flush" blood pressure technique. The high operative mortality rate is related to the lack of collateral· the pulmonary hypertension nearly al-

---

*Presented before the Section on Pediatrics at the ninety-first annual session of the Mississippi State
†Department of Surgery, University of Mississippi Medical Center, Jackson, Mississippi.

---

*Abbott and Travenol.

ways manifested by these patients, the very frequent association of multiple other cardiac anomalies, and the presence of congestive heart failure. Nonetheless, the non-operative mortality in these cases is so extremely high that operation is indicated in all patients, regardless of age, who develop impending or frank congestive failure that does not promptly respond to medical therapy[3],[4].

ATRIAL SEPTAL DEFECTS

In the septum primum defect, the cleft extends through the annulus of the mitral and tricuspid valves, often with clefts in the valves and valve leaflets, and with an associated intraventricular septal defect. The septum secundum defects are located higher in the septum between the atrial chambers and clinically closely resemble a patent foramen ovale. As many as 30 per cent of the secundum defects will have anomalous pulmonary venous drainage that will require concomitant correction. As an atrial defect ordinarily allows a left to right shunt from the left atrium into the right atrium, with recirculation of blood through the lungs and back through the atria, there is increased work load on the right heart, with occasional development of pulmonary hypertension, but more often signs of dyspnea, delayed development, or retarded activity. The foramen ovale and septum secundum defects can be corrected with less than a 5 per cent mortality utilizing hypothermia or cardio-pulmonary by-pass. Closed techniques are seldom used any longer. Septum primum defects carry a more grave risk with or without operation and require an open technique.

INTERVENTRICULAR SEPTAL DEFECTS

Interventricular septal defects are the most common of the intracardiac defects, and initially place an increased strain on the left heart, as there is a flow of blood from the left ventricle to the right ventricle through the lungs to return to the left side of the heart in a useless recirculation of blood. In addition, there are the manifest dangers of pulmonary hypertension, which is thought to occur almost universally if the defect is as large as one centimeter in infants. Infants may show pulmonary hypertension from birth as the normal fetal medial hypertrophy of the pulmonary arterioles has not had opportunity to regress. In infants who show evidence of developing or continuing pulmonary hypertension, the operative mortality has been almost prohibitive for initial correction. However, a two-stage approach has been made, with the first stage being the banding of the pulmonary artery, which is narrowed according to the method of Muller and Dammann, to create a controlled pulmonic stenosis and reduce the left to right shunt across the septal defect. This decreases the work of the left ventricle, improves the systemic circulation, and spares the lung vasculature. At a later date when the child has grown large enough to tolerate cardiac by-pass, the septal defect is closed and the pulmonary artery constriction removed[6]. In older children at the present time it is thought that the ventricular septal defect should not be corrected if the child is asymptomatic, and the heart size is normal with an essentially normal electrocardiogram. However, the demonstration of an enlarging left ventricle, with a left to right shunt and electrocardiographic evidence of left ventricular hypertrophy or strain, are definite indications for surgical correction[7]. In those patients with evidence of combined hypertrophy of the right and left ventricles, the right ventricular hypertrophy may be due either to pulmonary vascular changes or to pulmonic stenosis, the latter lending itself quite satisfactorily to surgical correction.

The risk of surgical correction correlates directly with the degree of pulmonary hypertension, particularly as related to normal systemic pressure. Pure right ventricular hypertrophy by electrocardiography almost always precludes surgery, as it signifies a high, fixed, pulmonary artery pressure. Many patients with pulmonary hypertension and combined ventricular hypertrophy will demonstrate a fall in pulmonary artery pressure or a reversal of a right to left shunt to a left to right shunt on inhalation of oxygen. As this demonstrates residual elasticity of the pulmonary vasculature and potential reversibility of the hypertension, the patient may still be a candidate for surgical correction, though at increased risk. In addition to the dangers of pulmonary hypertension there are also the dangers of aortic valvular damage and of conduction bundle disturbances as the Bundle of His frequently lies in the rim of a high interventricular defect. The latter can be handled by a pace maker utilizing a fine wire electrode implanted within the right ventricular myocardium at the time of surgery.

TETRALOGY OF FALLOT

Total operative correction for the Tetralogy of Fallot has now become possible, with closure of the interventricular septal defect and correction of the pulmonic stenosis. While this procedure has been possible, the operative mortality still considerably exceeds that of the various shunt procedures, and the operative mortality in infants appears at this time to be prohibitive. In about one third of the cases in the young age group there is an actual deficit of right ventricular wall so that it is necessary to place a graft in the ventricle to develop an adequate outflow tract. The concensus of opinion appears to be that nothing should be done at this time for a tetralogy that is doing well until the corrective procedure has been further refined. Infants who are having recurrent episodes of syncope, or who are not developing, should have a shunt procedure to tide them over until a corrective procedure can be done at a later date.

PULMONIC STENOSIS

Congenital pulmonic stenosis without other defects can be extremely satisfactorily corrected by a valvuloplasty. While the mild degrees of stenosis do not require therapy, it would appear that if the right ventricular pressure is greater than 75 millimeters of mercury, or if there is a gradient of more than 50 millimeters of mercury across the pulmonic valve[8], operative intervention should be considered. Above a pressure of 75 millimeters in the right ventricle, clinical symptoms of recurrent pulmonary infections, dyspnea, restricted activity, and electrocardiographic changes of right ventricular hypertrophy and strain appear. In virtually all centers better results have been obtained from open surgery on the pulmonary valve through the base of the pulmonary artery, then by the blind transventricular division of the valve by the method of Brock. There is still no unanimity as to the use of hypothermia versus the pump-oxygenator in the treatment of these if the lesion is purely valvular, as this can be corrected within the time limitations of hypothermia. The 20 per cent with infundibular stenosis, however, may require more time than is available with hypothermia.

CASE REPORTS

L. C., a three-year-old white boy, was admitted to University Hospital with a known pulmonic murmur since birth, frequent respiratory infections and slightly increased fatigability. Physical examination showed a well-developed, well-nourished child, with a systolic murmur and thrill, loudest in the second interspace to the left of the sternum. Cardiac catheterization revealed a pressure in the right ventricle of 110/22, with a femoral artery pressure of 100/60. The oxygen saturations in the superior vena cava, right atrium and right ventricle were all approximately 60 per cent compared with 94 per cent in the femoral artery. The pulmonary artery could not be entered at the time of catheterization. At operation on January 27, 1959, under general hypothermia with the body temperature reduced to 92 degrees F, a mid-sternal incision was made. After occlusion of the venae cavae, the pulmonary artery was opened and the usual truncated cone pulmonary valve was found, with an opening of less than two millimeters. The valve was divided along the commissures widely until the finger could easily be introduced into the ventricular chamber, which showed no evidence of infundibular stenosis. The artery was repaired, the chest closed and the body temperature restored to normal. The patient made an uneventful recovery, and was discharged on the seventh postoperative day. Pulmonary artery pressures taken at operation showed a preoperative pressure in the pulmonary artery of 20/15, and after valvulotomy 25/12, with the right ventricular pressure reduced to essentially the same.

CASE II. D. S., a six-year-old white male, was admitted with a story of a murmur since birth, but no symptoms other than slight fatigability. Physical examination showed a well-developed boy, with no clubbing or cyanosis. There was a grade four systolic murmur and thrill best detected in the second left interspace. Cardiac catheterization revealed the following:

Site	Pressure (mm. Hg.)	O-2 Sat.
V. C.	—	69.9%
R. A.	4	69.7
R. V.	87/3	68.5
P. A.	15/5	67.9
F. A.	140/100	96.2

At operation on February 3, 1959, the heart was exposed through a midline sternal splitting incision. Number 22 catheters were inserted into the superior and inferior vena cava through the right atrial appendage, and the right femoral artery was catheterized for return of blood from the pump oxygenator. During total cardio-pulmonary by-pass the pulmonary artery was opened and again the truncated cone pulmonic valve with a two millimeter opening was demonstrated and valvulotomy performed. Again palpation of the interior of the right ventricular chamber revealed no evidence of infundibular stenosis. The pulmonary artery was repaired, and the heart resumed normal function as the patient was taken off the pump-oxygenator. His postoperative course was uneventful, and the patient was discharged on the tenth postoperative day.

AORTIC STENOSIS

Patients with congenital aortic stenosis show evidence of left ventricular hypertrophy and strain and coronary insufficiency as manifested by angina, dyspnea, syncope, and fatigability. Only very rarely is there pulmonary edema or right heart failure. The aortic valve with its fused commissures corresponds to that in pulmonic stenosis and similarly is often bicuspid. Valvuloplasty is indicated if there is a gradient of more than 50 mm. Hg. between the left ventricle and aorta or if the calculated valve area is less than 0.5 cm. 2/m.2 of body surface area[9]. Morrow reported that approximately 10 per cent of these patients die of sudden death—some even while awaiting surgery—and so recommends that valvulotomy be performed at an early age. This can be performed with less than a 5 per cent risk unless the patients have fibroblastosis, which appears to be a frequent concomitant.

---

*Cardiac catherization by Dr. T. M. Blake and Dr. J. R. Smith.

TRANSPOSITION OF THE GREAT VESSELS

Surgical correction of transposition of the aorta and pulmonary artery, in which the aorta rises from the right ventricular chamber and the pulmonary artery from the left has not been as yet altogether satisfactory. Obviously, this lesion is not even compatible with life unless there are additional anomalies such as septal defects or a patent ductus to allow exchange of blood between the systems. The total corrective procedures that have been attempted have been attended with a prohibitive mortality. The method devised by Baffes diverts the blood flow from the inferior vena cava into the left atrium where it can pass through the left ventricle into the pulmonary artery, and transposes the right pulmonary veins into the right atrium so that oxygenated blood can be pumped by the right ventricle into the aorta and systemic vessels. This procedure has worked quite satisfactorily as a palliative measure, though due to the extremely severe nature of this abnormality, the salvage rate remains low. In infants approximately 33 per cent can be salvaged, but approximately two-thirds of the children over the age of two survive, largely as a reflection of the less serious nature of the particular variant of their abnormalities.

REFERENCES

1. Waddell, W. G., Fairley, M. B., and Bigelow, W. G., Improved Management of Clinical Hypothermia Based Upon Related Biochemical Studies, Annals of Surgery 146:542, 1957.
2. Rumel, W. R., Bailey, C. P., Samson, P. C., Waterman, D. H., and Bing, R. J., Surgical Treatment of Coarctation of the Aorta, J.A.M.A. 164:5, 1957.
3. Sullivan, J. J., Jr., and Mangiardi, J. L., Preductal Coarctation of the Aorta and Patent Ductus: Case Report and Review, Annals of Surgery 149:435, 1959.
4. Mustard, W. T., Rowe, R. D., Keith, J. D., and Sirek, A., Coarctation of the Aorta with Special Reference to the First Year of Life, Annals of Surgery 141:429, 1955.
5. Muller, W. H., Jr., and Dammann, J. F., Jr., Treatment of Certain Congenital Malformations of Heart by Creation of Pulmonic Stenosis to Reduce Pulmonary Hypertention and Excessive Pulmonary Blood Flow: Preliminary Report, Surg., Gynec. & Obst. 95:213, 1952.
6. Sirak, H. D., Hosier, D. M., and Clatworthy, H. W., Jr., Defects of the Interventricular Septum in Infancy: A Two-Stage Approach to Their Surgical Correction, New Eng. J. of Med. 260:147, 1959.
7. Fyler, D. C., Rudolph, A. M., Wittenborg, M. H., and Nadas, A. S., Ventricular Septal Defect in Infants and Children: A Correlation of Clinical, Physiologic, and Autopsy Data, Circulation XVIII: 833, 1958.
8. Hanson, J. S., Ikkos, D., Crafoord, C., and Ovenfors, C., Results of Surgery for Congenital Pulmonic Stenosis, Cir. 18:588, 1958.
9. Morrow, A. G., Sharp, E. H., Braunwald, E., Congenital Aortic Stenosis. Clinical and Hemodynamic Findings, Surgical Technique, and Results of Operation, Cir. 18:1091, 1958.
10. Baffes, T. G., A New Method for Surgical Correction of Transposition of the Aorta and Pulmonary Artery, Surg., Gynec., & Obst. 102:227, 1956.

The Mentally Retarded Child

ROBERT G. JORDAN, M.D.[†]
Memphis, Tenn.

My background is that of being medical director of an evaluation clinic for retarded children in Memphis. I think we might start by defining what we mean by mental retardation. One definition that I like is that mental retardation is a symptom which may be permanent or temporary and which manifests itself in a given environment by social inadequacy due in whole or in part to intellectual limitation.

Another one, that has been in general use and that is used by the American Association on Mental Deficiency, is that this is a group of conditions which is characterized by inadequate social adjustment, reduced learning capacity and slow rate of maturation. This may be present singly or in combination due to a degree of intellectual functioning which is below the average range and usually is present from birth or early age.

Retardation is a big problem. It has been estimated that there are about four million retardates in this country. Another way of expressing this is that one family out of four has some problem to deal with in retardation. This is not one child out of four, but one family out of four. The relative incidence of mental retardation, in comparison to other handicapping conditions, is interesting to us. In those under 21 years of age, the number per thousand in a survey that was done in recent years, gave the following figures: cosmetic handicaps per thousand, 43; mentally retarded, 40; personality disturbances, 29; speech, 29; visual, 24; hearing, 19; orthopedic, 17; orthodontic, 16; cardiac, 10; cerebral palsy, 5; epilepsy, 4; cleft palate and lip, 1.

---

[*] Talk made at the First Mississippi Conference on Handicapped Children, March 4, 1959, Jackson, Miss.

[†] Medical director of the Mental Retardation Clinic, LeBonheur Children's Hospital, Memphis, Tennessee.

You may say, "Well, why do we bother about problems in retardation? There's nothing that can be done." This is all too prevalent an attitude, present not only with people who have no training, but in the minds of people who do, including, I'm sorry to say, many physicians. The fact is that the vast majority of individuals with this diagnosis can be trained or given some degree of education to make themselves somewhat independent. The figures vary, but the estimates have been as high as 75 per cent mildly retarded and 20 per cent moderately retarded.

In the mild category we feel that a child is capable of some self-care and some self-direction appropriate for his age. He is potentially capable of being partially self-supporting if educated and supervised. He may achieve scholastically through the elementary level. If he has problems, they are usually minor. The intelligence quotients are usually 50 to 70. I would like to digress here a moment to say that we feel, as I'm sure many of you do, that an intelligence quotient is overdone as such. It is not a diagnosis, it is simply an aid to diagnosis—a yard stick in discussing patients among ourselves. We make it a rule never to tell a patient the intelligence quotient figure for several reasons. In a mild retardate, social and intellectual development at adulthood are about seven through eleven years.

In the moderate group we feel that the child is capable of some self-cure and self-direction. This is the group that many people call trainable. We feel that this is at a very slow rate. He should care for feeding, dressing, and toilet needs after five or six years of age. At adulthood he can contribute to his own support only if steadily supervised. He may achieve scholastically up through the second or third grade level, but profits more from training than from education. Communications problems usually exist, but some communication is possible. Intelligence quotients usually are between 25 and 50; social and intellectual development at adulthood are at the four-to-seven-year range.

In the severe or "custodial" group, the child is unable to care for most physical needs. Even in adulthood he's unable to care for the simplest self-help. Training, at best, is limited to self-care skills. Communication is limited to response, to simple verbal commands and verbal expressions and their intelligence quotients are usually below 25, social and intellectual development at adulthood below the four-year level.

This classification is based on a lot of information which we attempt to gain in evaluating a patient, not only medically, socially, and psychologically, but many other ways. We feel that the family situation enters into our recommendations in almost every case, and we feel that every case has to be individualized to a large extent.

Regarding our philosophy in approaching problems in retardation, traditionally, people have thought of retardation in terms of the more obvious or more severe cases that were recognized quite early, and have not thought of the high retardate levels of intelligence. When we had a more rural type of community in America, many of the mild retardates who lived in isolated areas where competition was not keen were thought merely to be eccentric and they got by pretty well. But that day is fading, and the need to do something about these retardates is increasing as we become more urbanized. We approach problems in retardation with the basic philosophy that we want to help bring out the best in potential in this individual in whatever way we may do so. We veer away from recommendations towards institutionalism if we possibly can. If it is indicated, both because of the family situation and the low level of intelligence, we may very strongly recommend institutionalization.

Our first goal is gaining acceptance of the problem on the part of the family, which becomes quite complicated and time-consuming in many instances. Along with channeling our efforts toward helping this child, we have to include a number of things. One of them is whether medication is indicated. We get into the need for tranquilizers, for anticonvulsant medication, and occasionally other types of medication. It is amazing how much resistance parents offer in giving routine medication. Another possibility is the need for surgery. Neurological advances continue in such things as stopping the progression of brain damage or removal of some area of damage-causing seizures. One of the biggest areas in which we make recommendations is in the need for orthopedic care. Making a child ambulatory, for example, goes a long way toward our goal of helping a handicapped child. We attempt to cooperate with already existing services such as speech and hearing and cerebral palsy centers, and liaison with educational and training facilities in our city. Special classes may be started in a town by serving as a stimulus for some of the families in those towns. After all, if we have a central nervous system that is damaged and irreversibly so, the main things we can do from here on are in the field of education and training. We have an educational consultant on our staff.

We have evaluated about 350 cases and roughly they have fallen into these categories percentage-wise: The mild ones have made up approximately 31 per cent; the moderate ones, 29 per cent; the severe ones, about 20 per cent; and then a figure that I would like to emphasize is that 19 per cent of the children we have seen have not been retarded at all. This is true in spite of the fact that we attempt to screen out before intake, children who are not retarded. Most of them are emotional problems, deep emotional conflicts. A few are psychotic. They are functioning at retarded levels.

In attempting to emphasize the positive, let me illustrate what can be done in the field of retardation. First, a little girl who was age six when we first saw her was sent in because she was thought to be completely deaf and severely retarded. She was not speaking, and had had no group experience. Our findings were that she was not deaf, she had no motor disability, and if retarded, she was only mildly so. Our diagnosis was that she had a language disorder—the preferable term in the field of speech and hearing nowadays over the term aphasia. She was very muchly over-protected, but from a very cooperative family. With weekly speech therapy and with mother carrying out some of the therapy at home, this child, after a year, was speaking in sentences, was taking her place in a group, and demanding her turn to take part in group activity. She will be enrolled in a special class next year.

Now, I would defy anyone to tell these parents that nothing can be done for retarded children. They had been told that this child should be placed in an institution for severe retardates as soon as she reached the legal age in Tennessee and that there was nothing that could be done. Instead, it looks as though she might be a tax-payer or raise some taxpayers.

Another one is a little girl who was twenty months old when we first saw her. The diagnosis of phenylketonuria was made. This is an inherited metabolic condition which occurs supposedly about once in twenty thousand births. We are not sure of the true incidence of this condition. It can be diagnosed with a very simple test on a wet diaper in early infancy. If it is diagnosed early enough and the child placed on the proper diet, these children can grow up normally and the retardation which is a part of the picture is avoided. This particular child was already twenty months of age and some irreversible damage had been done. However, when we first saw this child, she was doing nothing but lying on the table fussing, was not sitting up, was only using her hands, and that not in any purposeful manner. This was six months ago. She has now progressed to the point that she is crawling, sitting, and bearing weight on the lower extremities. The seizures she was having have ceased and she is a much less irritable child, much more placid and happy.

Unfortunately, we had another such case who was older than this one. It's been estimated that the custodial care of one of these individuals would amount to at least one hundred thousand dollars over a period of years. These make up a known one per cent of the inmates of our institutions, and obviously, this figure must be somewhat low because in some states the population of institutions has not been surveyed to ascertain the extent of this diagnosis.

Another child, a six-year-old child from Mississippi, we had to admit to the hospital because of the family situation. This child was extremely hyperactive. He had made a shambles of the hospital floor within twelve hours. He had broken toys, a number of dishes, and a window. The nurses were getting desperate, asking us to discharge him or snow him under with something. Some of these individuals with brain damage will respond dramatically to dexedrine. The effect is opposite from that expected in normal individuals, who want to stay awake and drive all night. This child responded within twelve hours. All of his hyperactivity ceased, he was able to go to the playroom alone and the nurse was quite happy to have him on the floor. Our psychologist felt that this child could not be fully evaluated at this point because he had been hyperactive and with such a short attention span all of his life, he hadn't had much time to learn anything. His impression is that this particular child is only mildly retarded if at all. His mother stated after coming back a month later, that the whole family had had to get to know this child all over again. He wasn't the same individual. A re-evaluation is planned.

Another one is a child, age five, blind because of retrolental fibroplasia. When we first saw this child, she could not walk, had a very limited vocabulary and was having violent temper outbursts. Unfortunately, she was in a home situation that was about as bad as any I have seen. The mother was an alcoholic. Not only did she reject the child, she had six others. She was busy, but she actually abused this particular child, didn't bother to feed it or clean it up or do anything for it if she could help it. The Lions' School for the Blind heard about this child and became interested. After we had evaluated her, we encouraged them and, in fact, even went to some lengths to beg them to give this child a chance, but only if she were removed from the home. We finally got it placed in a foster home, and the response that this child made to being in a good home was so dramatic that the girls at the welfare office became interested and now are more helpful in trying to find homes for these children which we think are salvagable. In short, this particular child is now walking, doing a lot of talking, showing an interest in many things and her temper outbursts have practically ceased.

On two occasions she has been allowed to spend the weekend at home and in the two-day period that she has been at home, she has come back to the foster home all dirty again, acting like a baby, not wanting to do anything for herself and having the same old temper outbursts. I could tell you of a number of others, but I think these suffice to illustrate the thought that I want to leave with you when dealing with a retardate, "Accentuate the positive."

Retroperitoneal Rupture

RICHARD J. FIELD, SR., M.D., FACS, S. E. FIELD, SR., M.D., FACS,
RICHARD J. FIELD, JR., M.D.
Centreville, Miss.

Retroperitoneal rupture of the duodenum is fortunately an unusual injury for its insidious appearance following trauma is extremely serious. The increasing speed of the automobile and the magnitude of violent accidents gives this grave problem increasing impetus. In spite of the remarkable advantages in surgery of trauma, the mortality rate for this injury remains alarming. Its mortality rate is in direct ratio to the number of hours lost before surgery. The latter is in turn related directly to the index of suspicion of the surgeon. Regrettably the experience of most surgeons, including ourselves, with this particular problem is limited, which adds hours to the preoperative period. This presentation of our experiences, although dismal in results, is an effort to add information to the recognition of this serious injury.

INCIDENCE AND MORTALITY RATE

Ruptured intestine with non-penetrating trauma is not uncommon. Counsell and McCormack[2] reviewed the literature up to 1935 and found 1,313 cases with a mortality rate of 73 per cent. Poer and Woliver[9] added 163 cases to Counseller and McCormack[2] series from 1935 to 1941, totalling 1,476 cases with a decrease of mortality to 50 per cent in cases operated upon. These statistics included all portions of the duodenum. Maingot[7] has found that approximately 30 per cent of the duodenal injuries are in the retroperitoneal area. In a recent series of 50 patients reviewed by Webb[13] et al 92 per cent of the injuries were intraperitoneal and 8 per cent retroperitoneal. The mortality rate of the former was 27 per cent and of the latter 50 per cent. Again emphasizing the severity of the retroperitoneal type injury.

ETIOLOGY

The segments of the small intestine most commonly involved are those with relatively fixed mesentery attachments, i.e. the duodenojejunal segment near the ligament of Trietz and the ileum just proximal to the ileocecal junction. According to Wilder[11], the rupture of the intestines may occur in one of three ways; 1) The crushing type in which the viscera is forced against a thick structure such as a vertebra or pelvis. This is the type that we are particularly interested in and it is commonly produced by rapid deceleration of the automobile causing the steering wheel to strike the upper abdominal quadrants. The third and fourth portions of the duodenum have rather fixed mesentery attachments to the vertebra and thus cannot withstand force of any magnitude against them without rupturing. 2) A tangential force tearing the bowel and/or mesentery from its attachment. 3) Increased intraluminal pressure due to gas, fluid, and intestinal contents trapped between two fixed points. With a closed pylorus and an acute angle at the ligament of Trietz, this situation is produced and may readily occur while an individual is sitting up driving an automobile. Andrews, using compressed air, showed that a force of 6-10 pounds will rupture the intestine under such circumstances. When one considers the absence of this type injury among boxers, we realize the importance of the abdominal musculature in protecting these structures. The obvious element of surprise which occurs in steering wheel injuries does not allow one to bring into effect this safeguard.

DIAGNOSIS

The early course of this injury is most often benign and insidious. The lack of sensory fibers in the retroperitoneal spaces makes it necessary for the bile and pancreatic secretions to spill over into the intraperitoneal spaces thereby producing peritoneal irritation before the catastrophe is suspected. This undoubtedly occurred in our first case (V.M.). Shock is usually not present and, surprisingly enough, in both of our cases there was absolutely no evidence of contusion or ecchymosis of the skin of the abdomen. Case V.M. showed mild ecchymosis of the abdominal wall after 18 hours. For one to wait until overt signs of peritonitis occur may be disastrous (case V.M.).

The most common symptom is gradually increasing abdominal pain in the upper abdominal quadrants which may be preceded by vague back pain. Once the duodenal contents reach the intraperitoneal cavity the typical signs of acute abdominal catastrophe rapidly ensue, i.e. shock, marked rebound and absence of peristalsis. Because of spasm of the injured duodenum, the outflow of bile and pancreatic secretion may be delayed for several hours, thus again contributing to the lack of signs for even 12-20 hours, as in our case V.M.

Paracentesis of the abdomen was carried out in both our cases but not until late in the second case (S.M.) was there any nonclotting blood obtained. One would not expect to get a positive abdominal paracentesis until the bile and pancreatic fluid is spilled into the intraabdominal cavity which again would be very late. Of course, the obtaining of bile and pancreatic fluids, if the diagnosis had not been made prior to this time, would certainly be advantageous.

LABORATORY—These cases will all show a lymphocytosis and if the pancreas is involved a serum amylase may be elevated. Neither of these studies, however, can be more than supplementary assistance.

Radiographic studies, namely, flat and erect plates to the abdomen may be very helpful. Free air subdiaphragmatically or retroperitoneally eliminate the necessity of further observation but unfortunately it occurs only in a minority of instances. Ficerra[3] reporting 14 cases found only 4 cases demonstrating free air. This is in contrast to perforation of the stomach and colon where free air is demonstrated in 80 and 100 per cent of the cases respectively. We would not hesitate to use lipiodol by mouth if the situation presented itself for diagnosis. We would not use barium as it is too irritating to the peritoneum in our experience.

The two most important factors involved in early diagnosis of this injury are a high index of suspicion and constant careful bedside observation.

TREATMENT

Preoperative management consists of the usual procedures for any intraabdominal emergency, i.e. gastric decompression, blood replacement, antibiotics and fluids. Surgical technique depends upon the type laceration involved. Small lacerations should be closed in two layers (we use an inner layer of continuous catgut and outer layer of interrupted cotton) and drained well. Complete separation of the duodenum as in case S.M., we believe, because of the friable margins and the usual length of time involved before surgery, should be handled by closure of the distal end and establishing a duodenojejunostomy, after cutting away the damaged tissue of the proximal duodenum. This procedure can be accomplished quickly and a good distal closure and anastomosis obtained. In case V.M., in addition to closure of the laceration we did a Stamm type gastrostomy in an effort to deviate the gastric stream. We originally planned to do a gastrojejunostomy but the patient's condition was too desperate at that time to warrant it. Again, however, the surgeon's judgment is of paramount importance in what is to be done at the time of exploration. Adequate drainage cannot be over-emphasized as a duodenal fistula after this injury is the most frequent complication and if properly drained, it will close. In both of our cases we used, in addition to Penrose drains, catheter drains to set up stump drainage in the event a fistula should occur. In the literature, most of the survival cases following duodenal fistula and stump drainage instituted immediately.

CASE REPORTS

CASE V.M.—This was a 47-year-old white female who was admitted to the hospital one hour following a headon automobile collision. Although the driver, the patient was quite intoxicated and resisted rather violently the efforts of the state police to bring her to the hospital for observation. At no time was there loss of consciousness. On admission the patient was obviously under the influence of alcohol and walking around the emergency room insisting that there was "nothing wrong with me and I must be on my way." Physical examination at this time was entirely negative except for very mild tenderness in the abdomen without any evidence whatsoever of trauma to the abdomen. After much persuasion the patient was admitted to the hospital for observation. The time of admission was 5 p.m. Patient was extremely restless because of her intoxicated state but did not complain of any pain whatsoever until 4 a.m. the following morning (11 hours after admission) when she complained of mild and vague lumbosacral pain. At 7 a.m. (14 hours after admission) she complained of epigastric pain of not a serious degree and at this time there was mild rebound tenderness. This was the first time that any suspicion of intraabdominal injury was entertained by us. Patient was taken to the x-ray department and flat and erect films of the abdomen were made. The flat films showed a mottled appearance of air which was confined to the right side of the abdomen. This is a typical picture of retroperitoneal air. Thus with the diagnosis established, the patient was prepared rapidly for surgery. Gastric decompression was begun with intravenous fluids and patient was taken to surgery approximately 18 hours after admission. In the interim between the onset of the initial abdominal symptoms at 7 a.m. and surgery at approximately 12:30 p.m., the patient's condition rapidly deteriorated with obvious marked peritoneal irritation and shock and her blood pressure at the beginning of the surgical procedure was 70/60, having previously been 130/80.

Under general anesthetic and using levophed in addition to blood and 5 per cent dextrose in water to maintain normal BP, the abdomen was opened with a long right paramedian rectus muscle splitting incision and immediately upon opening the abdominal cavity there was a gushing forth of bile-stained fluid. Exploration revealed this fluid to be exuding from a tear along the lateral border of the second portion of the duodenum, and the right retroperitoneal area was edematous and filled with dark bile-stained fluid which extended down into the pelvis. The lateral attachment of the peritoneum to the second and third portions of the duodenum was incised and the duodenum mobilized medially after the method of Kocher. This revealed a 5 cm. laceration in the posterior wall of the third portion of the duodenum. The edges were edematous and friable and there was evidence of fatty necrosis surrounding this laceration. Because of the desperate condition of the patient at this time it was deemed wise simply to close this laceration which was done with a continuous Connell type suture through all layers of the duodenum as an inner layer and an outer serosal layer of interrupted cotton. The Stamm type gastrostomy was done bringing the catheter out a separate stab wound and three Penrose drains were brought out through the right flank and two through the left flank and one No. 18 French catheter was brought out through the right flank with the previously mentioned drains. At the completion of the procedure the patient's blood pressure improved and her condition generally improved. However, within two hours after the completion of the procedure, the patient again went into cardiovascular collapse and in spite of hypertensive agents and blood and fluids, she died six hours following the procedure. It is our impression that her death was due to the massive fulminating peritonitis produced by the bile and pancreatic secretions.

COMMENT—This patient was obviously operated on far too late for a survival and represents all the problems involved in a retroperitoneal laceration of the duodenum. Her intoxication undoubtedly masked some of the retroperitoneal symptoms which might have been present as she did not show any symptoms whatsoever of abdominal injury until 14 hours following her accident. If this injury had been suspected on admission a flat and erect film may have been advantageous since the retroperitoneal air was present 14 hours following injury.

CASE S.M.—This was an 81-year-old white male who, while driving alone "ran into a stump which threw me out of the automobile." This accident occurred at approximately 9 a.m. on the day of admission. Immediately following the accident patient began to complain of increasing severe epigastric pains, particularly with respirations. He was brought to the hospital three hours after the accident complaining of severe pain of the epigastric region at 12:30 p.m. On admission, patient was in severe pain and his pulse was quite rapid, 120, and with blood pressure 100/60. His abdomen was not rigid but quite tender in the epigastric region with mild rebound tenderness. Flat and erect films of the abdomen failed to reveal any subdiaphragmatic or retroperitoneal air. Intragastric tube was placed and the possibility of a retroperitoneal duodenal laceration immediately entertained. Fluids were begun and patient carefully observed. It was our initial impression that he had had a contusion of his pancreas and the early appearance of pain was due to a pancreatitis. However, his pain was not relieved by analgesics and his condition continued to deteriorate. He was taken to surgery at 6 p.m. approximately 6 hours after admission.

The abdomen was opened through an extensive right paramedian rectus muscle splitting incision and immediately upon opening the abdomen the bile-stained fluid was encountered. The lateral reflection of peritoneum from the second and third portion of the duodenum was incised and the duodenum rotated medially. The third portion of the duodenum was found to be severed entirely. The two ends were approximately three inches apart at this time. The retroperitoneal area and the intraperitoneal cavity were filled with bile-stained fluids. The margins of the duodenum were surprisingly good and a rapid closure of the distal duodenum was accomplished with inner Connell continuous catgut suture and outer interrupted cotton sutures. A duodenojejunostomy was performed using the proximal duodenum. The latter anastomosis was done with an inner layer of interlocking catgut and an outer layer of interrupted cotton. The abdomen was closed and the patient's condition was much improved. The patient did well for approximately one hour following surgery with BP within normal limits but soon thereafter he went into cardiovascular collapse and died in spite of intensive efforts.

COMMENT—Because of the age of this patient, the peritonitis resulting from the spilling of the bile and pancreatic fluids into his peritoneal cavity was too great. The rapidity with which we were able to accomplish the duodenojejunostomy with closure of the distal stump leads us to believe that this is probably the ideal way to treat these cases. In both of the above cases there was definite contusion of the head of the pancreas. Most cases of this type will have some injury to the pancreas.

SUMMARY—Discussion of retroperitoneal duodenal injury due to non-penetrating trauma. An injury of increasing interest because of automobile accidents and its persistently high mortality.

CONCLUSION

1. With the increasing speed of automobiles, the steering wheel rupture of the duodenum retroperitoneally with its insidious onset must be suspected.

2. There is a 50 per cent rate due largely to lack of suspicion by the observing surgeon.

3. Blunt trauma to the abdomen with gradually increasing upper abdominal pain should make one aware of the possibility of this injury. Constant bedside observation is believed to be the best diagnostic tool.

4. Exploration as soon as possible and closure of the small lacerations with adequate drainage is believed to be the best procedure. However, when there is complete division of the duodenum or large laceration, it is our feeling that the distal end of the duodenum should be closed and a duodenojejunostomy accomplished. Adequate drainage cannot be overemphasized.

BIBLIOGRAPHY

1. Andrews, E. B., Pneumatic rupture of intestine; New type of industrial accident, Surg., Gynec. & Obst. 12:63 (Jan.) 1911.
2. Counseller, V. S., and McCormack, D. J., Subcutaneous perforation of the jejunum, Am. Surg. 102:365 (Sept.) 1935.
3. Ficarra, B. J., Traumatic perforations of small intestine due to nonpenetrating abdominal injuries, Surgery 15:465 (March) 1944.
4. Hanley, J. A., Retroperitoneal duodenal rupture, Brit. M. J. 1:505-506, March 1, 1958.
5. Hansen, R. W. and Williams, F. R., Retroperitoneal rupture of the duodenum due to blunt trauma, Am. J. Surg. 94:816-189, Nov. 1957.
6. Kelley, J. L. and Todd, J. D., Rupture of the duodenum from nonpenetrating abdominal trauma, West. J. Surg., Obst. & Gynec. 64:638-642, Dec. 1956.
7. Maingot, R., Abdominal operations, New York, 1948, D. Appleton-Century Co., Inc.
8. Patton, T. B., Duodenal injury due to nonpenetrating abdominal trauma, Am. Surgeon 23:587-593, June 1957.
9. Poer, D. N., and Woliver, E.: Intestinal and mesenteric injury due to nonpenetrating abdominal trauma, J.A.M.A. 118:11 (Jan. 3) 1942.
10. Stransky, J. J., Retroperitoneal rupture of duodenum due to nonpenetrating abdominal trauma; presentation of case and review of literature, Surgery 35:928-936, June 1954.
11. Stransky, J. J., Retroperitoneal rupture of the duodenum due to nonpenetrating abdominal trauma; presentation of a case and review of the literature, S. Dakota J. Med. 10:77-80, March 1957.
12. Strode, J. E. and Hilbert, F. J., Jr., Retroperitoneal rupture of duodenum following nonpenetrating injuries to abdomen, AMA Arch. Surg. 70:343-347, March 1955.
13. Webb, H. W., J. M., Jordan, G. L. and Vowles, K. D., Surgical experiences in the treatment of duodenal injuries, Internat. Abst. Surg. 106:105-114, Feb. 1958, in Surg., Gynec. & Obst. 106: Feb. 1958.
14. Wilder, J. R., Rupture of duodenum due to nonpenetrating abdominal trauma, Am. Surgeon 21: 328-333, April 1955.

AMERICAN COLLEGE OF ALLERGISTS

The American College of Allergists offers a graduate instructional course at its Annual Congress, February 28 to March 4, 1960, the Americana Hotel, Bal Harbour, Miami Beach, Florida.

For information contact, John D. Gillaspie, M.D., Treasurer, 2049 Broadway, Boulder, Colo.

SOUTHEASTERN SURGICAL CONGRESS AWARD

The Southeastern Surgical Congress announces annual prize scientific paper award: first prize—$100.00 cash, plus expenses to meeting; second prize—$50.00 cash; third prize—$25.00 cash.

Rules:

1. All surgical residents in AMA-approved hospitals in the Southeastern states are eligible.
2. Papers are to be turned in to the Councilor of the Southeastern Surgical Congress of the state in which the resident is located by December 1, 1959. Three copies are required.
3. The first-prize paper will be read by the author at the next meeting of the Congress in New Orleans, Louisiana, March 21-24.
4. The Southeastern Surgical Congress reserves the right to publish all manuscripts in its official publication, *The American Surgeon.* All manuscripts must be typewritten in English and submitted in triplicate.
5. The decision of the committee will be final.
6. All papers not accepted for publication in the *American Surgeon* will be returned to the authors

Dr. Willard H. Parsons, Vicksburg, is president-elect of the Congress.

UNIVERSITY OF TEXAS OFFERS SEMINAR

The University of Texas Postgraduate School of Medicine will present a seminar on Dermapathology from 9:00 to 12:00 noon and 1:30 to 5:00 p.m. on November 12, 1959, in the auditorium of the University of Texas M. D. Anderson Hospital and Tumor Institute. This seminar is designed for pathologists and dermatologists interested in the histopathologic changes of various skin disorders. It will be built around sets of slides which will be mailed to the participants in advance for individual study and diagnosis. Dr. Elson B. Helwig and Dr. J. Leslie Smith will act as moderators for the presentation of the cases and the discussion. The cases will include non-neoplastic as well as neoplastic entities.

The seminar will be restricted to 100 participants and registration will be closed October 12, 1959.

Although not a part of the Fourth Annual Clinical Conference scheduled for November 13 and 14, 1959, this seminar has been scheduled to immediately precede the Clinical Symposium because of the areas of overlapping interest.

For further details, please write the Office of the Dean, The University of Texas Postgraduate School of Medicine, 410 Jesse Jones Library Building, Texas Medical Center, Houston 25, Texas.

Medical Center Miscellany

The North Mississippi Community hospital in Tupelo and the Greenwood Leflore hospital in Greenwood will host the initial sessions in a series of UMC-sponsored Circuit Courses for physicians to begin this fall.

A half-day program will be offered in six Mississippi cities each week for four consecutive weeks beginning with the northern circuit in Tupelo on October 28 and in Greenwood on October 29.

Four teams of three physicians each will take up various aspects of surgery, medicine, preventive medicine and pediatrics, and obstetrics-gynecology in that order, the printed program reveals. Ample time will be allowed for informal discussion.

Dr. Watts R. Webb, associate professor of surgery, will speak on "The Care of Thoracic Emergencies," to open the October 28-29 programs. Other speakers will be Dr. J. H. Conn, clinical assistant professor of surgery, and Dr. Leonard Fabian, chairman of the anesthesiology department. Dr. Conn's topic will be "Surface Tumors," and Dr. Fabian's, "Resuscitation."

On November 4 and 5, also in Tupelo and Greenwood, speakers will be Dr. Frederic McDuffie, assistant professor of medicine; Dr. Thomas M. Blake, associate professor of medicine, and Dr. Charles W. Caccamise, Jr., clinical assistant professor of medicine. They will discuss "Management of the Arthritic Patient," "A Rational Approach to Atherosclerosis," and "Diagnosis and Treatment of Common Skin Diseases."

The northern circuit will continue on November 11 and 12 when Dr. Thomas J. Brooks, Jr., chairman of the preventive medicine department, will talk on "Diagnosis and Treatment of Amebiasis." Dr. David G. Watson will speak on "Pediatric Cardiology," and Dr. Darrel Smith on "Endocrine Disorders in Children." Both Dr. Watson and Dr. Smith are newly appointed assistant professors of pediatrics.

The final programs in Tupelo and Greenwood will be held on November 18 and 19 with the faculty to include Dr. Ross Bass, clinical assistant professor; Dr. William L. Crouch, clinical assistant professor, and Dr. Michael Newton, professor and chairman, all of the obstetrics-gynecology department. Their respective topics will be "Obstetrical Emergencies," "Common Office Gynecological Problems," and "Diagnosis and Management of Carcinoma of the Cervix."

Programs for the southern and central circuits will follow a pattern similar to the northern circuit. Details will be announced as the dates approach. The southern circuit sessions will be held in Memorial hospital, Gulfport, and Methodist hospital in Hattiesburg beginning in mid-January while the central circuit will meet in Matty Hersee hospital, Meridian, and the University Medical Center, starting in mid-March.

The Mississippi Academy of General Practice and the Mississippi State Medical Association are cooperating with the Medical Center postgraduate education committee in presenting these courses. Component societies have assisted in selecting meeting places.

Each session will start promptly at 2:00 p.m. No registration fee will be charged since the series is supported by an educational grant from E. R. Squibb and Sons.

Pediatric Faculty

Two assistant professors have been named to the Pediatric department faculty in recent weeks. They are Dr. David G. Watson and Dr. Darrel Smith who also has an overlapping appointment in biochemistry.

Dr. Watson is a pediatric cardiologist who comes to the Medical Center from St. Michael's Hospital for Sick Children in Toronto, Canada. He received his M.D. from the University of Toronto and interned at St. Michael's hospital there.

In addition to his pediatric residency training received at St. Michael's Hospital for Sick Children and the University of Minnesota hospitals, he also took specialty training in pathology at Children's Hospital of Michigan in Detroit, cardiology and internal medicine at St. Michael's.

Dr. Smith was formerly an instructor and a research fellow in pediatrics at the University of Pennsylvania. He is a graduate of the University of Tennessee in Knoxville and got his M.D. at Tennessee in 1951. He interned and took his residency in pediatrics at John Gaston hospital.

Dr. Smith earned his masters in pediatrics at Tennessee in 1956 and was a fellow in pediatric endocrinology at Baylor for one year before going to Philadelphia. He is the author of some 18 publications primarily on pediatric endocrinology.

INTERPRETING MEDICAL LITERATURE

STAFF OF REVIEW

JOSEPH P. MELVIN, Jr., M.D.	Cardiology
Harvey F. Garrison, Jr., M.D.	Pediatrics
JAMES D. HARDY, M.D., and STAFF, Department of Surgery, University Medical Center	

CARDIOLOGY

Digoxin: Single versus Divided Daily Maintenance Dosage; *American Heart Journal,* Vol. 58, No. 2, Page 171, August, 1959, Gerard Church and Henry J. L. Marriott, Department of Medicine, University of Maryland School of Medicine, Baltimore, Maryland.

The authors review the advantages of a short-acting glycoside, digoxin, as a preparation of choice in the treatment of heart failure when the therapeutic range is narrow. Because the end point of full digitalization is often not clear cut, dosage of the drug is frequently pushed to toxicity in order to be certain that the patient is deriving maximum benefit, and the use of a short-acting glycoside such as digoxin may make it easier and safer to maintain a patient below the toxic level. The question in these authors' minds was whether the daily dosage in a short-acting glycoside such as this should be broken into two equal fractions or should be given as one daily dose. Friedman has stated in one of his reviews that when a patient becomes intoxicated with digoxin he often can continue on the same total daily dose but *divided,* and have all the signs and symptoms of toxicity subside. However, in a later article, he made the conflicting assertion that the intoxicating dose of digoxin is the same, whether the drug is given in a divided dose or in a single daily dose, and he has concluded that an undivided single daily dose is "always the most satisfactory way of administering" this preparation. Other authors have compared digitalis with insulin in that giving digoxin in a single daily dose parallels the use of a single daily dose of regular insulin in a brittle diabetic, and the giving of a longer acting preparation such as digitoxin more closely approaches the comparison of a dose of long-acting insulin in the same patient. The authors, in this article, reviewed thirty patients, who, on maintenance digitalis schedules with other preparations, were switched to .25 mg. twice daily without altering other supportive therapy. They compared the frequency of toxicity on single versus divided dosage at the same total dosage level and results showed that, while these patients proved able to tolerate a daily divided dose of digoxin, they were unable to take the same total daily dose at one dose without toxicity. In addition, one patient was able to take 1 mg. daily when divided into two equal portions, but when it was unevenly divided, as .75 mg. in the morning and .25 mg. in the evening, he developed anorexia, abdominal pain and blurred vision. Their conclusions were that some people can be maintained on a higher total daily amount of digoxin if this is administered in divided doses.

Comment: I agree with the authors in that there seems to be very little therapeutic difference between the two schedules, although it seems fairly definite from this article and from my own experience that the risk of toxicity is significantly greater on the single dose schedule. For the last one or two years, I have been dividing all short-acting digitalis preparations into two or even three doses during the day, rather than giving it all at one time, and I believe that these patients tolerate more digitalis, tolerate it better and evidence fewer digitalis toxicity symptoms.

PEDIATRICS

Posthemorrhagic Anemia and Shock in the Newborn. By Henry N. Kirman, M.D. and Harris D. Riley, Jr., M.D.

While hemolytic disease (erythroblastosis) may account for most cases of anemia present at birth, it is becoming increasingly apparent that a significant number of newborn infants are anemic or in shock because of fetal blood-loss. As in most cases the bleeding occurs during labor or expulsion of the fetus, the infants are often live-born and salvagable. Prompt replacement of blood-loss can be life-saving when shock or severe anemia exists.

Seven of the live-born cases reported from Vanderbilt University Hospital occurred in an obstetrical experience of 7,400 deliveries, suggesting an incidence of 1 in 1,000 or about one live-born case of hemorrhage for every five cases of hemolytic disease. In a review of occurrence of anemia before three months of age at that hospital, fetal hemorrhage was found to be the second commonest cause (hemolytic disease, the first) of anemia present at birth.

Causes are given as:

1. Rupture of the normal umbilical cord.
2. Rupture of the umbilical cord due to focal weakness.
3. Vulnerable anomalous vessels.
4. Fetal bleeding from the placenta.

Clinical Manifestations and Diagnosis:

Upon the delivery of a pale infant in distress and without hepatosplenomegaly, ordinary resuscitative measures are provided: clearing the airway; handling gently; administering oxygen; and providing safe artificial respiration as indicated. If not already present, the assistance of a second physician should be obtained. While these measures are being taken, Group O, Rh-negative blood, plasma, albumin in saline solution, or dextrin, is ordered because perhaps in that preference, but using that which is first available. A plastic catheter or feeding tube, such as is used in umbilical catheterization for exchange transfusions, should be procured. A blood sample should be obtained from the infant for hemoglobin determination, provided this does not delay therapy. The placenta should be inspected as soon as it is delivered. It is with these last two measures that the assistance of a second physician becomes valuable. If, after receiving oxygen until necessary items arrive, the infant continues to show pallor, approximately 20 ml/kg of the available fluid is injected by the quickest attainable intravenous route. Umbilical cannulization has the advantage of enabling one to obtain a blood sample and measure the venous pressure, if desired, and to begin the transfusion—all within moments and with little disturbance to the infant. By the time the transfusion is to be given, the differences between "asphyxia pallida" and posthemorrhagic shock should have become apparent. If not, with gentle handling these measures do no harm. The same is true of the infant with internal hemorrhage and injury. However, following prompt transfusion, infants with the last two conditions may not show the rapid and persistent response which characterizes the baby with the types of blood-loss under consideration. Another injection of 10 to 20 ml/kg of whole blood may be given soon after the first injection of fluid, especially if whole blood was not given initially. If the infant is not in distress due to acute blood loss, and if the hemoglobin is in the neighborhood of 11 or 12 gm/100 ml., no treatment may be needed, because the anemia does not progress. If the hemoglobin is below 8 or 9 gm/100 ml., or there is evidence of shock, transfusion is indicated.

SURGERY

Pancreatic Surgery—Warren, Kenneth W. and Cattell, Richard *New Eng. J. Med.* 261: 333, 1959

In this article these two authors, both quite experienced in the field and the authors of the most prominent volume available on pancreatic surgery, review the subjects of postoperative pancreatitis and of chronic relapsing pancreatitis. Both of these diseases are of much significance to all physicians.

Postoperative pancreatitis is characterized as a bizarre and unpredictable disease. This complication is attended by a very high mortality rate and is more common following gastric resections and following biliary surgery and splenectomy. Although many possible causes for the postoperative pancreatitis have been advanced in the literature, it would appear most likely that trauma to the pancreas or its ducts is the most serious cause of pancreatitis. Particularly to be guarded against is all undue trauma to the sphincter of Oddi by probing the common duct, sphincterotomy, and the use of the long-limb T tube. Again, the mortality of postoperative pancreatitis has been in the neighborhood of 50 per cent in most series.

Postoperative pancreatitis should be suspected in any patient showing traumatic signs of abdominal distress in the first few days following surgery. It is pointed out that bacterial infection causing peritonitis is more likely to come on later than is the pancreatitis which may occur within 24 to 48 hours. One important initial sign may be a rapid pulse and a tendency to profuse perspiration. Furthermore, the pulse rate may be out of all proportion to the elevation of temperature. The patient may not complain of serious abdominal pain. The early development and extreme persistence of ileus should also alert the examiner to the possibility of postoperative pancreatitis, and the incidence of postoperative shock in this disease is high. If one suspected the disease, its presence can be confirmed by serial determinations of the serum amylase level. Once the disease is recognized, prompt and vigorous treatment with Miller-Abbott intubation, restoration of fluid and electrolyte balance and the maintenance of blood volume by the use of albumin, plasma expanders and whole blood should be employed. Massive doses of the appropriate antibiotics should be given, and careful analysis for diabetes or for a dangerously low serum calcium level should be made. A low serum calcium level usually reflects severe disease and is often associated with a fatal outcome. Eventually abscess formation may be anticipated, if the patient lives long enough, and these collections must be drained surgically in most instances.

Chronic relapsing pancreatitis continues to present an extremely confusing clinical picture, and, more particularly, etiology. Although the disease usually is associated with pain during its development, it may occur without pain. The severe pain in most patients often leads to narcotic addiction, alcoholism, or even suicide. Actually, many of these patients have long been alcoholics anyway. The disease may be hereditary, or may be caused by excessive consumption of alcohol, may be related to the presence of pre-existing biliary disease, or may even apparently contribute to the development of gallstones themselves. A particular feature of the condition is the tendency to the formation of calculi in the pancreatic ducts. It is generally agreed that this pancreatolithiasis represents a phase in the natural history of certain varieties of chronic relapsing pancreatitis. Most patients in whom pancreatic stones develop will have had numerous attacks of pancreatitis before the stones appeared. However, some patients with pancreatic stones give no history of preceding attacks of pancreatitis, though such patients may have had repeated attacks of abdominal pain in childhood.

A vast array of different types of surgical and other treatments have been suggested for the management of chronic relapsing pancreatitis, so severe is the condition and so difficult is it to achieve effective cure or even palliation. The essence of the current objectives of most operations designed for the management of this condition is that they in some way reduce the degree or incidence of obstruction of the pancreatic ducts. That is, there appears to be, more and more, the realization that one major feature which should be amenable to surgical therapy is the varying degree of obstruction of the two major pancreatic ducts and their radicals. Therefore, there has been considerable enthusiasm for sphincterotomy, which could reasonably be expected to correct obstructions at the sphincter of Oddi, and there has also been considerable recent experience with caudal pancreaticojejunostomy—that is, amputation of the tail of the pancreas and implantation of the remaining pancreatic stump into a loop of jejunum. The indications for decompressive therapy of various sorts lie in the demonstration of dilatation of the pancreatic ducts, whether by direct vision or by pancreatic roentgenography (pancreatogram). Finally, during the last few years there has been a resurgence of interest in the use of a partial or total pancreatectomy for the management of chronic relapsing pancreatitis.

COMMENT: It is clear that today there is no one good treatment for chronic relapsing pancreatitis. Most surgeons now agree that the operation should be suited to what is best for the individual patient concerned, according to the conditions found at the time of actual operation. Disease of the gallbladder and common bile duct, notably stones, should be effectively treated in any event. A sphincterotomy should be performed in many patients, particularly in those who have had some evidence of jaundice and where there is definite evidence of stenosis of the sphincter of Oddi when it is examined under direct vision at duodenotomy. Futhermore, if a pancreatogram demonstrates that there is a blockage of the main pancreatic duct, then the operation of caudal pancreaticojejunostomy should be employed in selected cases. Finally, the most conservative possible procedure should always be carried out, for most surgery upon the pancreas is fraught with serious complications in a certain number of cases.

MANAGEMENT OF PROFUSE GASTROINTESTINAL HEMORRHAGE—A. M. Snell, *Amer. Practitioner,* 10: 1315, 1959.

In an excellent survey of the clinical problem, the author points out that one should reserve the term "massive" for only those cases in which the bleeding produces a fall in the red blood count to below 2,500,000 per cu. mm. with a hemoglobin level of 7 grams or less, and a corresponding reduction in hematocrit values. Blood volume studies in such patients usually reveal a reduction in the circulating red cell mass to approximately 60 per cent of the normal level. Other objective findings include an elevated non-protein nitrogen level due to the presence of blood in the intestinal tract, products of which are absorbed. Melena is the universal symptom, and in 60 per cent of patients there is also hematemesis as well as varying degrees of hemorrhagic shock, with pallor, sweating, air hunger, and tachycardia.

The mortality of massive gastrointestinal hemorrhage is considered. One author is reported as having found an incidence of 10.3 per cent in 2,800 cases culled from the literature. Dr. Snell feels that in most general hospitals the mortality is probably about 15 per cent for massive hemorrhage and, as is well known, the risk increases rapidly with advancing age. He emphasizes that therapy is no longer based upon the bland assumptions of the following shaky premises: (1) that the hemorrhage is most likely coming from a peptic ulcer, with esophageal varices as a weak and second choice; (2) that little or nothing can be done short of surgical exploration to determine accurately the location of the bleeding point; and (3) that the surgical indications are doubtful and that exploration is ordinarily attended with a prohibitive mortality. These premises have been largely discarded, either singly or as a group.

The *diagnosis* will be found to represent a duodenal ulcer in the majority of patients under forty, though it is by no means "80 per cent to 90 per cent." While duodenal ulcer is predominant in patients below the age of forty, gastric ulcer figures are responsible for only about two-thirds of all gross hemorrhages. In one recent report it is pointed out that peptic ulcer was responsible for bleeding in 53 per cent of cases, esophageal varices for 12 per cent, and neoplastic disease for 2 per cent. The remaining one-third of the group were due to miscellaneous causes such as gastritis, hiatal hernia, chronic relapsing pancreatitis, parenchymal tumors of upper digestive tract, steroid therapy, aspirin, multiple hereditary telangiectasia, Meckel's diverticulum, and various other less common conditions. The point is, the bleeding may well not be due to a peptic ulcer, and an aggressive diagnostic approach is advised by the author. He notes that esophagoscopy will frequently reveal esophageal varices and/or an esophageal ulcer. The BSP test and the serum prothrombin level may reflect the presence of serious liver disease. Early resorts to roentgen studies using barium as a contract medium may reveal definite pathology in a sufficient number of cases to warrant its use, despite the acknowledged difficulties of accurate roentgenography in the presence of active bleeding with pooling of blood and other material in the stomach. Of course, certain evidences of liver disease are reflected in the physical examination. It is again emphasized that the patient with cirrhosis may be bleeding from a condition such as peptic ulcer, and not necessarily from esophageal varices.

The *treatment* of massively bleeding ulcer is determined by the probable cause, though aggressive supportive therapy is indicated in all instances. Instead of the older philosophy of avoiding transfusion as long as possible, it is now acknowledged by all that blood loss should be replaced as it occurs. This maintains the patient in the best possible physiologic condition to withstand further bleeding or necessary surgery. Most large hospitals have developed an orderly approach to the management of massive gastrointestinal hemorrhage, the central responsibility being held by a team of internist and surgeon. Thus, early transfusion, gastrointestinal suction and, when advisable, feeding are employed. The decision to employ surgery is usually forced by one or more of the following considerations: (1) the persistence of epigastric pain, (2) shock, (3) dyspnea, (4) a systolic blood pressure below 100 mm. of mercury, (5) a plus rate exceeding 100 per minute, and (6) age over 50 years. Others have included (1) a rapid rate of bleeding as shown by the need of more than 1,500 cc's of transfused blood in 24 hours; (2) hematemesis more than twice in 24 hours and a large tarry stool more than three times in 24 hours; (3) a failure of bleeding of lesser degree to stop in three days, as shown by the persistence of hematemesis and tarry stools, tachycardia, and hypotension; (the usual corollary to this is a falling hemoglobin and hematocrit level in spite of transfusion); (4) recurrent bleeding after apparent arrest of the hemorrhage for 24 hours or more.

The surgical approach and plan will depend upon many factors, one being the amount of blood remaining available and another being the probable diagnosis of the source of the bleeding. In any event, one has the choice either of searching carefully and finding the bleeding source with appropriate management or of performing blind subtotal gastric resection with the hope that (1) the bleeding source will have been excised or (2) the reduction in the gastric acidity will permit the bleeding to cease thereafter.

COMMENT: This reviewer would agree that the patient with massive gastrointestinal hemorrhage, as does the patient with serious intestinal obstruction, requires the very best clinical efforts of his physicians. So widely does the precise constellation of circumstances vary from one such patient to another that no fixed rules can be laid down. In general, however, I feel that surgery should be resorted to before the patient is virtually exsanguinated and before his general physiologic reserves have been critically depleted. The mortality of gastric resection itself is low in a patient whose physiologic conditions remain good. A fully transfused patient who has had massive intestinal bleeding remains to be a good operative risk under most circumstances, provided the operation is done expeditiously and in such a manner as to control the bleeding definitely.

Article reviewed by Dr. James D. Hardy, Professor and Chairman of the Department of Surgery, University Medical Center, Jackson, Miss.

THE MISSISSIPPI DOCTOR

The journal with a vision which encourages a plan of delivering modern medicine to the masses at less cost to the individual and more profit to the practitioner. It champions the community hospital, the hub around which this service must be built.

Entered as second-class matter, January 19, 1926, at the post office at Booneville, Miss., under the Act of March 3, 1870. Annual subscription, $3.00.

W. H. ANDERSON, M.D.	Editor-in-Chief
MILDRED P. ANDERSON	Assistant Editor

MID-SOUTH POSTGRADUATE MEDICAL ASSEMBLY

W. G. Stephenson, M.D.	President	Chattanooga, Tenn.
Omar Simmons, M.D.	President-elect	Newton, Miss.
David E. Stewart, M.D.	Vice-President	Brownsville, Tenn.
L. B. Otken, M.D.	Vice-President	Greenwood, Miss.
C. G. Swingle, M.D.	Vice-President	Marked Tree, Ark.
Thurman Crawford, M.D.	Secretary-Treasurer	Memphis, Tenn.

Mid-South Associate Editors

H. King Wade, M.D.	Hot Springs, Ark.
Frank M. Acree, M.D.	Greenville, Miss.
R. L. Sanders, M.D.	Memphis, Tenn.

MISSISSIPPI STATE MEDICAL ASSOCIATION

Stanley A. Hill, M.D.	Corinth	President
G. Swink Hicks, M.D.	Natchez	President-elect
Wm. E. Lotterhos, M.D.	Jackson	Secretary
Rowland B. Kennedy	Jackson	Executive Secretary
Wm. M. Dabney, M.D.	Crystal Springs	State Associate Editors
Louis F. Rittelmeyer, M.D.	Jackson	

The Publication Committee is not responsible for the authenticity of opinion or statements made by authors or in communications submitted to this journal for publication. The author or communicant shall be held entirely responsible.

Address all material for publication to W. H. Anderson, M.D., 30 West Church Street, Booneville, Mississippi.

WHAT LIES AHEAD IN AMERICAN MEDICINE?

Dr. Louis M. Orr, President of the American Medical Association, dealt with that in his inaugural address. There are two possible roads that can be taken. In his words, "One road leads to rigid and unworkable compulsion, to deadening uniformity, and to the loss of that individualism and vitality which have made American medicine a pacesetter in the world. This road we must not take.

"The other is the road of the free spirit, of dedicated men and women voluntarily working together, of sustained and heartening progress in the never-ending war against the killers and cripplers of mankind. This is the road we have followed. This is the road we must follow. For in this way—and in this way only—can we continue to make medicine a faithful servant to mankind."

The danger lies in legislative proposals which to some degree, in one way or another, would give government a controlling hand in the practice of medicine. Some of these proposals, like that which would provide medical, hospital and nursing home care to people drawing social security benefits, may seem attractive. But this is precisely the kind of precedent that "puts the camel's nose in the tent"—and opens the way to socialized medicine, in which compulsion replaces voluntary cooperation.

To quote Dr. Orr again, "We believe that freedom, to survive and grow, can never be placed on a shelf and forgotten but must be fought for again and again, day after day, by men and women willing to stand up and to be counted." Freedom, if it is to endure, must be indivisible."

THE GREAT WHITE FLEET

A wave of public and official enthusiasm has greeted a plan, proposed by Commander Frank Manson, USN, and described in *Life* magazine, for sending a Great White Fleet on mercy missions around the world. The vessels would be drawn from our mothball fleet and would consist of a fully equipped hospital ship, a cargo ship loaded with stores and clothing, a transport converted into a floating technical school or students of countries in need of help, a carrier with helicopters, and other craft. They would be unarmed, and their purpose would be to serve people in trouble. Financing would be by public subscription.

This spectacular idea has enormous possibilities. It could save untold numbers of people in far corners of the world from starvation, disease, disasters of one kind or another. It could give the world a new image of the United States. At the same time, it is obvious, complex organizational and administrative problems are involved.

To help with those problems, 14 major American-flag shipping companies, comprising the Committee of American Steamship Lines, has now formally offered to apply their shipping know-how on a non-profit basis to the Great White Fleet. These companies have available the trained and experienced management, the operating and technical skills, all backed by a global network of agents and offices. Their fleets of nearly 300 ships now operate world-wide over trade routes declared essential by the government. These ships and organizations are the hard core of our merchant marine.

We believe the Great White Fleet concept about the best international relations prospect yet advanced.

FOLLY AND TRAGEDY

More and more people—from sociologists to medical authorities, and from business leaders to government officials—are becoming vitally concerned with the practice of retiring workers at some arbitrary age, such as 60 or 65.

The life span has been greatly expanded. The percentage of elderly people in the population is swiftly increasing. And, thanks to medical progress and other factors, the elderly in large part, retain mental and physical vigor into advanced years. Under such circumstances, forcibly to retire men and women at some given age, regardless of their abilities and energies and desires, becomes both folly and tragedy.

We all know of people who are making outstanding contributions to the world in old age. Herbert Hoover, for instance, has just become 85. He works a 10-hour day, is writing four important books, maintains a heavy schedule of appointments, and is full of the zest of life.

Destiny marks few of us to become Hoovers or Churchills or Adenauers or Schweitzers. But millions of elderly people can perform valuable tasks. They need to keep usefully occupied. And the nation needs their services.

PRESIDENT HONORED

Corinth and the Northeast Medical Society are honoring the state president on September 8, when Northeast gathers in Corinth for its quarterly meeting.

It is quite proper for the doctors and citizens of Corinth to do honor to a favorite son, Dr. Stanley Hill, presently serving as president of the State Medical Association. Dr. Stanley deserves this on his own for the service he has rendered, and the office of "president" is always respected. We shared his disappointment when Public Night was abandoned by the State Medical Association. Good public relations practiced by the medical associations in session might save a lot of lobby money in Washington. A man worthy to be president of the State Medical Association is no doubt an able man, full of information and inspiration, and should be allowed freedom, not made a rubber stamp.

WORDS BETTER THAN BOMBS

Numbers of people apparently consider the pending meetings between President Eisenhower and Premier Khruschev as hypocritical and even immoral. To this idea, Mr. Nixon said: "The alternative is you either talk to them or eventually you are going to fight them. And the alternative, to me, is unacceptable, not only for us but to them, and for the world generally."

This explains why frustrating meetings of foreign ministers and others are held even though the chance of reaching substantial agreements on the problems that plague the world seem almost as remote as the moon. And it explains, too, why Mr. Khrushchev has been invited to this country, and why Mr. Eisenhower, in his turn, will go to Russia. It is just that words—even profitless words—are better than bullets, and infinitely better than nuclear bombs.

American and Russian artists, scientists and industrial leaders have exchanged visits. In every instance, so far as one can see, the results have been healthy. A new measure of respect has been gained on both sides. So has a measure of friendship.

It would be foolish to expect too much from the Khrushchev-Eisenhower journeys. We must remain wary and watchful—as will the Russians. But these spectacular and unprecedented events hold hope for all the peoples of the wrold.

DRINKS INCLUDED

We have many medical banquets and we have noted for a number of years that when you say, "Isn't this a bit high for a ticket?" the reply comes, "You see, this ticket includes the drinks." If there be any class who should abstain from alcoholic beverage, it does seem that it should be the medical profession.

POLIO ON THE INCREASE

Polio is on the increase, almost twice as many cases as there were this time last year, increase in the paralytic type. This is too bad when we have the means to stay this dreaded disease. Doctors, the laity and especially public health authorities should urge the people to be vaccinated, to show how well it acts and how important is prevention. Maybe doctors need to take a little more time to talk to their clientele and show how important it is for the individual to be protected for his own sake and for the sake of others.

THREE EMINENT PHYSICIANS

We would pause to recognize three outstanding men in Mississippi medicine, all members of the American College of Surgeons, but whose health require retirement from practice. Dean of the group is Dr. E. C. Parker of Gulfport. He has been outstanding and able in his profession and has given freely of his time to organized medicine. He is a past president of the Mississippi State Medical Association.

Dr. J. C. Culley of Oxford is a man who was a most able surgeon. He taught in the two-year medical school at Ole Miss for many years. He was an idealist in operating a successful private hospital. He is also a past-president of the State Association. It has always been good to feel the pulsation of his warm heart and catch the enthusiasm of his medical spirit, his courtly manner, and versatile interests.

Dr. W. H. Sutherland of Booneville has for some time been confined to his room at the Northeast Mississippi Hospital. He founded the institution, the first hospital in this section of the state. Dr. Sutherland did a tremendous amount of surgery. He visited the leading clinics in this country and other countries and kept up with the best talent to be found. He sat at the feet of Dr. J. B. Murphy of Chicago and learned from this master. He founded a good nursing school which served many years in producing fine nurses.

SOLUTION

The shortage of nurses is coming to the attention of the entire nation. It is very important that our state have more nurses. We are building a magnificent system of hospitals in this country and our doctor shortage is lessened, but we are critically in need of nurses. There are several different ideas about the nursing problem. Some think we should have nurses with academic degrees and allow practical nurses to do the rest of the work; others say a nurse between these should have one stream-lined year, others think she should have two years.

We think that Mississippi has the most satisfactory plan. It provides for a three-year course. This plan is progressing in the Junior College and the Northeast Mississippi Hospital at Booneville. This school of nursing is under the direction of the Board of Trustees of Institutions of Higher Learning, headed by the able and safe Dr. E. R. Jobe, and we can well have a number of these schools in our state. We have an excellent system of junior colleges and an unsurpassed hospital system. To this junior college-hospital affiliation we can attract and train students who will do honor to the nursing profession. This plan puts the load of training mainly on the state rather than on the hospital and the sick patient. If promoted it will give us a fine type of nurse and will soon train enough to take care of the shortage. We need a number of nurses who have a B.A. degree or more, but we need a three-year trained nurse with some college training to serve as a bedside nurse or on the halls. Many patients need a nurse like this and are able and willing to pay for her.

AMERICAN INSTITUTE OF ULTRASONICS

The American Institute of Ultrasonics in Medicine will hold their annual meeting on September 2, 1959, at the Leamington Hotel, Minneapolis, Minnesota. The guest speaker at the luncheon meeting will be Russell Meyers, M.D., professor of surgery and chairman, Division of Neurosurgery, State University of Iowa Hospitals and College of Medicine, who will discuss "The Potentials of Ultrasonics in General Surgery and Surgical Specialities."

For any further information contact John H. Aldes, M.D., Secretary, 4833 Fountain Avenue, Los Angeles 29, California.

AMERICAN FRACTURE ASSOCIATION

The twentieth annual meeting of the American Fracture Association and a one-day postgraduate course on fractures will be held at the Roosevelt Hotel in New Orleans, November 1 through 4. Both events are acceptable for credit with the American Academy of General Practice and the Louisiana Academy of General Practice. The postgraduate course, sponsored by the Division of Graduate Medicine of Tulane School of Medicine, will grant four and a half hours of credit in category one for registrants. Tuition fee is ten dollars.

TECHNICIAN HONORED

Miss Patricia Hinton, president of Mississippi State Society of Medical Technologists, won the Scientific Products First Award, Bacteriology Section, for her paper titled "Isolation and Characterization of an Unusual Organism in Blood Culture: Vibrio Fetus" which was presented at the ASMT National Convention in Phoenix on June 17. Miss Hinton is assistant chief technologist at the University Medical Center.

FOR SALE: Entire contents of well-equipped clinic, including 100 MA and 500 MA x-ray machines. GSD, c-o Marion County Health Department, Columbia, Mississippi.

LIBRARY

The MISSISSIPPI Doctor

THE MISSISSIPPI DOCTOR, OCTOBER, 1959 NO.

WEALTH IS THE parent of luxury and indolence, and poverty of meanness and viciousness, and both of discontent. —*Plato*

In This Issue

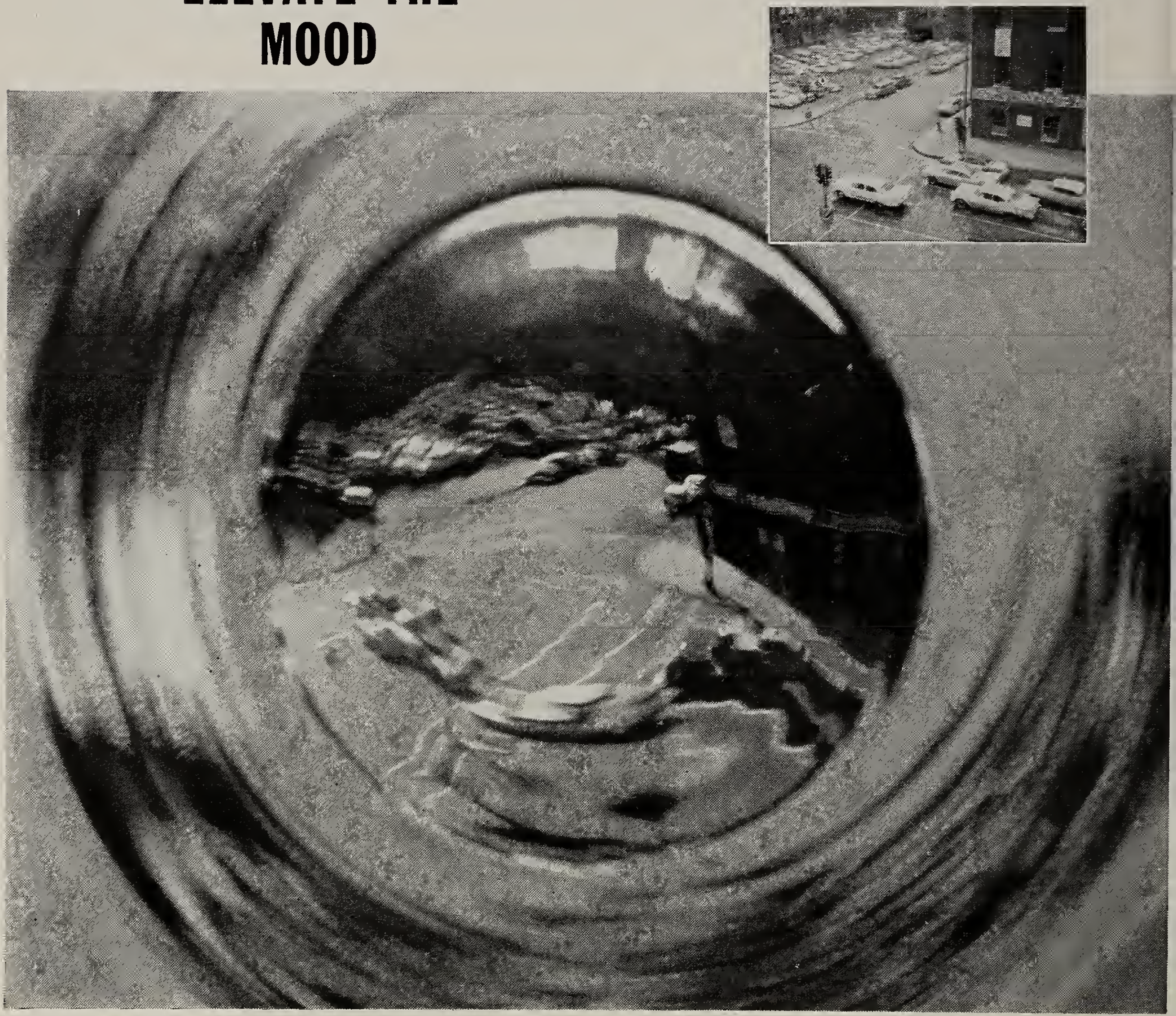
VAGINAL RELAXATIONS
Joseph Hyde Pratt, M.D.

ARTERIOVENOUS (A. V.) FISTULAS
A GENERAL SURVEY WITH EMPHASIS ON TRAUMATIC LESIONS
James D. Hardy, M.D., F.A.C.S.

EVOLVING PATTERNS OF HEALTH PROTECTION AND CONSERVATION
A. L. Gray, M.D., M.P.H.

OBSERVATIONS ON TREATMENT OF FRACTURES OF THE LOWER EXTREMITY
Charles T. Berry, M.D.

CONTROL
VERTIGO, DIZZINESS...
AND
ELEVATE THE
MOOD



with **Dramamine-*D*®**
brand of dimenhydrinate with dextro-amphetamine sulfate

"Disturbances of balance resulting from vestibular disorders have long been known to lead to severe anxiety."*

Vertigo—whether of organic or functional origin—tends to leave depression in its wake. Dramamine-*D* is a therapeutic combination designed for treatment of the entire vertigo-reaction syndrome. Each tablet contains dimenhydrinate (50 mg.) to control dizziness, and dextro-amphetamine sulfate (5 mg.) to elevate the mood.

*Pratt, R. T. C., and McKenzie, W.: Anxiety States Following Vestibular Disorders, Lancet *2*:347 (Aug. 16) 1958.

Dramamine® available as tablets, ampuls, liquid, suppositories

Research in the Service of Medicine **SEARLE**

Vaginal Relaxations *

JOSEPH HYDE PRATT, M.D.
Section of Surgery
Mayo Clinic and Mayo Foundation†
Rochester, Minnesota

There are several ways to approach the problem of vaginal relaxation as this is a relatively universal condition that may be found in some degree in all parturient women and occasionally even in the nulliparous patient. It is a condition that in itself is seldom fatal, though distressing complications may result from prolapsed vaginal walls. Moreover the symptoms that can be ascribed to the relaxed vagina are multitudinous. There are specific complaints, such as incontinence, difficulty in defecation, protrusion of a mass at the introitus, vaginal spotting or bleeding, or the feeling that the patient may describe as "sitting on a tennis ball." In addition, there are numerous varied, vague, more or less intangible sensations such as fullness, heaviness in the lower part of the abdomen, backache of all degrees, constipation, so-called ovarian pain, tiredness, nervousness, inconstant dyspareunia, fear of pregnancy, fear of cancer, sense of insecurity and the like. Nor is any of the symptomatology consistently related to the objective degree of the relaxation. Therefore, consideration of the condition involves not only the objective examination of the vagina and vaginal supports but also, and to an even greater extent, the evaluation of the symptoms as given by or elicited from the patients.

The detailed history is therefore of utmost importance. Why does this particular patient come to a physician? What is the chief complaint that brings her? Many vague statements may lead to the discovery that the greatest problem of a young woman is a hard-to-handle husband and the real difficulty is fear of another pregnancy when she does not know how she will take care of another child when she cannot take care of the two, three, four or six children she already has produced. To a given patient this is just as important or more so than the incontinence of another patient who cannot laugh or tell a story without crossing her legs.

This same young woman in her twenties or thirties may well have a bearing-down sensation when on her feet or a feeling of "everything dropping out" that is relieved when she lies down. Incontinence in such patients is usually minimal, but some mild difficulty with evacuation of the rectum is common. Examination will show the cervix descending to the midlower vagina, a relaxation of the bladder, grade 1 to 2, on a basis of 1 to 4 with 1 the least and 4 the greatest degree, a rectocele, grade 2, on the same basis, a thin perineum and a boggy uterus. There is nothing particularly remarkable on examination or in the history—merely a girl with numerous minimal findings and minimal to moderate symptoms, and yet the evaluation of the total patient presents a real problem. There is nothing here that 6 months away from home, husband, children and responsibilities would not relieve. At a practical level a bulk-former, such as psyllium hydrophilic mucilloid (metamucil), or a wetting compound, such as dioctyl sodium sulfosuccinate (doxinate), and discussion of bowel habits should help solve the rectal problem. Rarely is a pessary indicated nor is it likely to relieve the bearing down. Contraceptives may be obnoxious to the patient or against her religious beliefs. Therefore, when conservative measures have failed or seem to the physician to be hopeless, and when the patient's difficulties seem real enough to warrant definite steps to be taken for relief, then the physician must decide whether or not to advise repair of the vaginal walls and vaginal hysterectomy.

The risk of a vaginal hysterectomy and repair is extremely low, 0.1 to 0.2 of 1 per cent[1],[3], and such a procedure will strengthen the pelvic supports and be of benefit in general. It should always be stressed, however, that the uterus cannot be replaced and therefore there is no possibility of the patient changing her mind later in regard to future pregnancies. On the other hand, it is safe to say that her sex life will be changed little, if any, and in the majority of patients it will be surprisingly normal. Although this is true in the premenopausal patients it is not true in the postmenopausal patient with thin atrophic vaginal walls. The vagina then is inelastic and tends to shrink even more after operation; physiologic dilatations are infrequent and of short duration, and as a result, the vagina atrophies and intercourse is painful. If, in addition, adhesions occur, the problem is multiplied. It is necessary to do vaginal examinations every few days after operation until no tendency to form adhesions is found and to stimulate the vaginal mucosa with estrogens, such as stilbestrol suppositories.

---

*Read at the Mid-South Postgraduate Medical Assembly, Memphis, Tennessee, February 11-16, 1959.

†The Mayo Foundation, Rochester, Minnesota, is a part of the Graduate School of the University of Minnesota.

The complaints of patients in their thirties and early forties are much the same, that is, some bearing down, heaviness in the pelvis, sensation of a ball in the vagina, or backache. Disregarding the medical student's definition of a woman as "a constipated biped with a backache," the latter symptom must be considered and discussed. It is a perfectly reasonable assumption that as the vaginal walls give way and relax and the uterine supports are stretched, the patient might have a backache. If such relaxation and stretching have developed and she does have a backache, then the pain should be relieved by repair of the vagina and hysterectomy. If the patient will wear a pessary for a few weeks and if she is relieved of pain while wearing the pessary but the pains return when the pessary is out, then vaginal hysterectomy and repair can be expected to relieve her backache just as the pessary did. It is an uncommon situation, however, when we can be so certain of results. Generally these patients are a little overweight and may have poor posture. Often some hypertrophic changes are developing in the spinal column; their backaches are usually orthostatic rather than pelvic and more patients are relieved by a firm mattress than by hysterectomy. When such a complaint is a major one it is the better part of wisdom to be cautious in the prognosis and to leave the patient most agreeably surprised if the backache is cured.

As the patient approaches or completes the menopause, the symptoms become less generalized and more specific. There is more trouble with the bladder, incontinence is more disturbing, and it may be necessary to wear a pad at parties or on convivial occasions. Rectal problems increase, and not infrequently the story is elicited that digital pressure on the perineum or in the vagina is necessary to aid in evacuation of the stool. Increasingly common is the initial complaint that "my womb is falling out," "a mass is coming out of the vagina" or "I feel like I am always sitting on a ball." Examination in the lithotomy position or in the standing position should reveal easily which tissue protrudes from the vagina, that is, whether it is the cervix or a cystocele or rectocele.

These patients need vaginal repairs to replace the prolapsed organs and to relieve their troublesome symptoms. When the patient has not had vaginal repairs we can expect a high percentage of "cures" with this type of operation. Counseller[4], in 1951, reviewed 578 consecutive vaginal repairs for incontinence and found that 85 per cent of the patients had complete relief and another 6 to 7 per cent good relief of their urinary difficulties, the repairs of the anterior wall being either a Kelly or a Kennedy repair.

One point that needs to be emphasized is the result that repair of the cystocele may be expected to accomplish. Stress incontinence associated with coughing, sneezing, laughing, or straining is the symptom most readily and effectively relieved by surgical intervention. When the incontinence has been present since childhood, however, one should be wary of the prognosis and should look for congenital defects such as short urethra, female hypospadias, ectopic ureter, or perhaps a neurogenic bladder, because these defects require varied approaches in order for the patient to obtain effective relief.

Urgency is another symptom that is not explained by the presence of a moderate cystocele and it is not likely to be relieved by repair of the cystocele. To a considerable extent urgency seems to be a habit based perhaps on fear of losing control of the urine, but it is still a reflex habit that causes the patient to run for the toilet under certain situations of stress. We can only hope to give security to the control of the urine and then try to break the reflex habit of feeling that the bladder must be emptied immediately. Encouraging the patient to refrain from voiding for longer and longer periods until she has full confidence in her ability to be continent is a major step. Frequency also is a habit often based on fear of incontinence and it is difficult to interrupt this habit even when the bladder is well replaced and seems to function satisfactorily. But frequency also may be due to an inflammatory irritation of the urethra or neck of the bladder, and the possibility of such irritation should be excluded preoperatively.

The problem of the necessity of using digital pressure in the vagina to aid in defecation has a good prognosis. The strengthening of the rectovaginal septum and the approximation of the levators anteriorly to the lower portion of the rectum and anus flatten out the anal canal and cause the fecal stream to be directed straight toward the anus; thus defecation is made easier and less straining and exercising are required. The combination of repair of the cystocele and rectocele and of vaginal hysterectomy, if there is an associated descensus, effectively relieves the sensation described as "sitting on a ball." Not infrequently these patients remark about the feeling of security and of being well supported which they have experienced after operation and wish that they had undergone the surgical procedure sooner.

The same holds true for the postmenopausal patient as for the menopausal patient; however, the loss of elastic fibers and the shrinking and atrophy of the vaginal mucosa in the first few years after the menopause often result in an increase in subjective complaints in these years. Thereafter the progress of symptoms is usually slow and increases little over any given period. But this sudden increase in difficulties after menopause causes a rather large percentage of patients with relaxed vaginal walls to seek help at that time. When such patients are bothered by the relaxing vaginal walls, repairs should be advised unless there is some systemic disease that would cause the operation to be a pronounced risk. On the other hand, patients are seen with bulging cystoceles, with cervices hanging out of the vagina and rubbing on their clothing, with large rectoceles, or with a thin, practically nonexistent perineum, and they have no complaints. These patients have either adjusted so perfectly to their disabilities that they no longer pay any attention to them or else their objective difficulties are really only minor irritations. Therefore, any advice regarding surgical measures must be based on more than the objective findings, for on the basis of these alone we can only say that repair is certainly indicated but not urged and that a week or a month or a year may make little difference.

If there has been a progression in the amount of descensus or relaxation between periodic pelvic examinations, then immediate surgical repair is indicated. In the long run also it is easier to repair a vagina with moderate relaxation and to obtain a satisfactory functioning result than to wait and repair the same vagina when the relaxation has progressed to complete prolapse. Age is not so great a factor, for although the risk of any surgical procedure increases with age, the change in risk when vaginal surgery is considered is minimal[5],[6]. In addition to the relaxation, if there has been some spotting or bleeding and an anesthetic is necessary in order to carry out any diagnostic procedure for the exclusion of cancer, then combined repair of the vaginal walls and hysterectomy is excellent advice.

Even though a patient may not be having any symptoms at the time of examination, if she has had repeated infections of the urinary tract in the past and if she has a moderate cystocele she can be advised to try surgical intervention as an aid to prevention of bouts of cystitis. This is particularly true if retention of urine in the bladder persists. However, cystoscopic examinations should be done before vaginal operation to exclude such conditions as diverticulum of the urethra or of the bladder, severe granular urethritis or trigonitis, ulcer, tumor, or stone.

Vaginal hysterectomy, repair of a cystocele and perineorrhaphy have been mentioned several times as procedures of choice in repairing vaginal relaxation because so seldom is there a real relaxation of the walls without some descensus. Also the symptoms that are present frequently are more closely associated with the uterine descensus than with the cystocele or rectocele *per se*. On the other hand, the uterus can be preserved if desired, and the Manchester operation commonly used for many years in England accomplishes this result. The Manchester operation preserves a little more length to the vagina; the fundus is still present, and pregnancies can occur and be carried to term. In this operation the cervix is amputated and therefore the most likely region in which carcinoma might develop has been eliminated. The repairs of the cystocele and rectocele can be done satisfactorily. Disadvantages of the procedure are the possibilities that malignant disease will develop in the fundus and that since the cervix is generally stenosed there may be a delay in symptoms suggestive of such development. Also in younger women pregnancies are not common after the Manchester operation and the course at term may be difficult. Finally, enteroceles and, rarely, prolapse of the uterus do occur. With the fundus retained all difficulties common to the fundus are encountered—pyometria, polyps, fibroids, irregular bleeding, or spotting and the like.

The Le Fort operation is a completely different type of approach for the relaxed, prolapsed vagina and uterus[7]. In the Le Fort operation no attempt is made to preserve the vagina for coitus, but long areas are denuded from anterior and posterior vaginal walls and these areas are approximated by closing the middle of the vagina but leaving two small lateral canals present. This repair is effective in older women who are willing to give up the vagina insofar as coitus is concerned. The operation, though rarely used, is easily done and can be done in elderly women with minimal risk. These various operations are described in detail in textbooks of gynecologic surgery and do not need to be discussed further in this paper.

One important facet of vaginal prolapse remains to be discussed, that is, enterocele. An enterocele is a herniation of the pouch of Douglas down the vaginal canal through the region behind the cervix and in front of the rectum. It may or may not contain loops of small intestine. It is a true hernia of the abdominal cavity as opposed to a rectocele, which is a bulging of the rectum into the vaginal canal, and in extreme cases the enterocele may protrude through the introitus. When both conditions are present a transverse sulcus can sometimes be detected between the two bulging sacs. Also on rectovaginal examination it is sometimes possible to feel a loop of bowel in the enterocele between the fingers when the patient strains. An enterocele encountered in the course of vaginal hysterectomy with contemplated repair of the cystocele and perineorrhaphy is no problem and takes relatively little additional time.

When the enterocele develops after vaginal hysterectomy and repair, satisfactory treatment is much more difficult. At times these enteroceles or prolapsed vaults or both seem to be new lesions that develop months or years after operation. But some enteroceles are the result of an incomplete operation; in other words, the surgeon just did not find or realize the depth of the cul-de-sac and therefore made no attempt to repair it. This would be a neglected enterocele. In other cases the wrong operation was chosen, such as total abdominal hysterectomy without repair of the vaginal walls for procidentia.

Regardless of etiology, when an enterocele or prolapsed vault has developed it should be repaired, and this is best accomplished from below. An incision is made over the enterocele, and the peritoneum of the sac is gradually dissected back until all the redundancy has been stretched down and the muscularis of bowel posteriorly and of bladder anteriorly is exposed. While the sac is still open an attempt is made to pass mattress sutures through the uterosacral ligaments; these sutures are tied and the neck of the hernial sac is closed with a purse-string suture. The cardinal ligaments are also sutured together if they can be identified. The excess vaginal mucosa is excised and closed and any cystocele or rectocele is carefully repaired. Cure is obtained in about 85 per cent of such cases[8]. Routinely the vagina is somewhat shortened, the extent depending primarily on the degree of the prolapsed vault. By combining a repair of the vaginal wall with suspension of the vault from above, a procedure that adds time and risk to the operation, more of the effective depth of the vagina can be salvaged and this will help to prevent dyspareunia.

Insofar as prognosis is concerned, repair of the vaginal walls and the usual associated vaginal hysterectomy afford good relief of the patient's complaints. Repair of a rectocele is very effective in aiding evacuation, although it is not a cure for constipation. The repair of a cystocele or urethrocele or both results in improvement or cure of incontinence in 90 per cent of the patients. The repair of the vault after hysterectomy, especially to eliminate the redundancy of the cul-de-sac and posterior fornix, is effective in keeping enteroceles at a minimum. Not many patients return for repair of a recurrence, though the actual rate of recurrence of cystocele or rectocele is difficult to obtain. If all patients could be re-examined two to three years after repair, recurrences of some degree probably would be found in about 20 to 30 per cent of them. However, in most of these patients recurrent relaxed vaginal walls are asymptomatic; they are not progressive and no further surgical attention is indicated.

REFERENCES

1. Allen, Edward and Peterson, L. F.: Versatility of Vaginal Hysterectomy Technic. Obst. and Gynec. Surv. 3: 240-247 (Mar.) 1954.
2. Pratt, J. H. and Scherman, Quinten: Morbidity in Vaginal Hysterectomy. Am. J. Obst. and Gyn. 67: 1323-1334 (June) 1954.
3. Burch, J. C. and Lavely, H. T.: Hysterectomy. Ann. Surg. 136: 720-732 (Oct.) 1952.
4. Counseller, V. S.: Methods and Technics for Surgical Correction of Stress Incontinence. J.A.M.A. 146: 27-30 (May 5) 1951.
5. Smith, L. R. and Pratt, J. H.: Vaginal Hysterectomy in the Geriatric Patient. Obst. and Gynec. Surv. 13: 84-91 (Jan.) 1959.
6. Cadenhead, E. F.: Vaginal Hysterectomy in the Aged. J. Internat. Coll. Surgeons 15: 57-61 (Jan.) 1951.
7. Tauber, R.: Technical Refinements of the Le Fort Operation. J. Albert Einstein M. Center 5: 129-135 (Mar.) 1957.
8. Symmonds, R.: Personal communication to the author.

Just recently Soviet Premier Khrushchev said: "Capitalists are going to be kept in archives like old newspapers or newsreels. We will look at them as today we look at the remains of prehistoric monsters and say: 'Look, that was a capitalist'." This is nothing more than a threat to every American's future.

When Tupolev, the Russian aircraft designer, visited our aircraft plants it wasn't the planes that astounded him; it was the crowded parking lots at the factories. He found it hard to believe that thousands of workmen owned a car and a home.

Maybe Russia will learn someday that capitalism is a mark of personal responsibility. Until then, every American should keep in mind Russia is bent on taking away from him the privilege of being a capitalist.

Arteriovenous (A.V.) Fistulas *

A General Survey with Emphasis on Traumatic Lesions

JAMES D. HARDY, M.D., F.A.C.S.†
Jackson, Miss.

GENERAL CONSIDERATIONS

Definitions and Etiologic Factors

ARTERIOVENOUS FISTULA is said to exist when the blood passes directly from an artery to a vein without first flowing through intervening capillaries. Physicians have long been fascinated by these lesions, and almost yearly some advance is made in our knowledge of this apparently simple but actually quite complex physiologic derangement.

There often exists confusion regarding the precise nature of these lesions, which do in fact vary considerably from one patient to another. For example, some workers will refer to the simple A-V fistula, as between the femoral artery and the femoral vein, as an arteriovenous aneurysm, while others will describe it simply as a femoral arteriovenous fistula. The writer believes it is far preferable to use the simple arteriovenous fistula designation, unless the arteriovenous fistula is in fact associated with, in addition, an aneurysm. And the latter may well be the case, for not only may there be a direct communication between the artery and the vein, but there may also be a false aneurysm (Fig. 3) even on the opposite side of the artery where a penetrating missile went through; or, there actually may be a true aneurysm, which is covered by normal or at least intact vascular membrane. Therefore we would urge the use of a specific designation of the precise defect that is thought to be present which is found at operation. Otherwise the reader will have difficulty in gaining a clear impression of just what the pathology entailed. Needless to say, it is helpful for the surgeon to visualize the anatomic derangements in advance, for at operation he must be prepared to deal with pathology other than that of the simple fistula if it should be present—as it was in the illustrative case to be presented below.

Again, arteriovenous fistulas may involve any two vessels of unequal pressures which lie adjacent to each other. There are not only traumatic arteriovenous fistulas (the most common) but there are also congenital arteriovenous fistulas as well as infectious fistulas and even "normal" fistulas, as in the skin and kidney, for example. The following serve as examples:

1. Traumatic Arteriovenous Fistulas
    a. Any adjacent artery and vein in the body (see Fig. 1)
2. Congenital Arteriovenous Fistulas
    a. Patent ductus arteriosus
    b. Cavernous hemangioma of the extremity
    c. Pulmonary arteriovenous fistula
    d. "Normal" fistulas that open up under physiologic circumstances
3. Infectious Arteriovenous Fistulas

Inasmuch as particular attention will be devoted to traumatic arteriovenous fistulas, a few words regarding congenital arteriovenous fistulas are in order at this point. If we pursue our proposition that an arteriovenous fistula represents any circumstance in which blood passes directly from a higher pressure peripheral vessel into a lower pressure vessel without first passing through intervening capillaries, it is readily appreciated that a patent ductus arteriosus represents such a fistula, at least so far as the basic pathophysiology of arteriovenous fistula is concerned. Here blood passes directly from the aorta through the patent ductus arteriosus into the pulmonary artery, with the resulting effect that an increased work load is placed upon the left heart and, if it persists long enough and the fistula is large enough, heart failure will ensue. Interestingly, bacterial infection may develop in the ductus itself or within the heart.

A second example of congenital fistula is that of the congenital pulmonary arteriovenous fistula. In this instance the blood passes directly from the pulmonary artery into the pulmonary vein and, if this shunt is large enough, unsaturated blood will pass into the pulmonary veins and thence into the left heart and systemic circulation to render the individual cyanotic. The treatment for this condition, as well as of the patent ductus arteriosus, is surgical. The pulmonary arteriovenous fistula also results in an increased work load upon the heart, and may eventually cause serious cardiac disability.

Another more complicated circumstance is that of the large "cavernous hemangioma" which is

---

†Professor and Chairman, Surgeon-in-Chief to the University Hospital, University of Mississippi Medical Center.

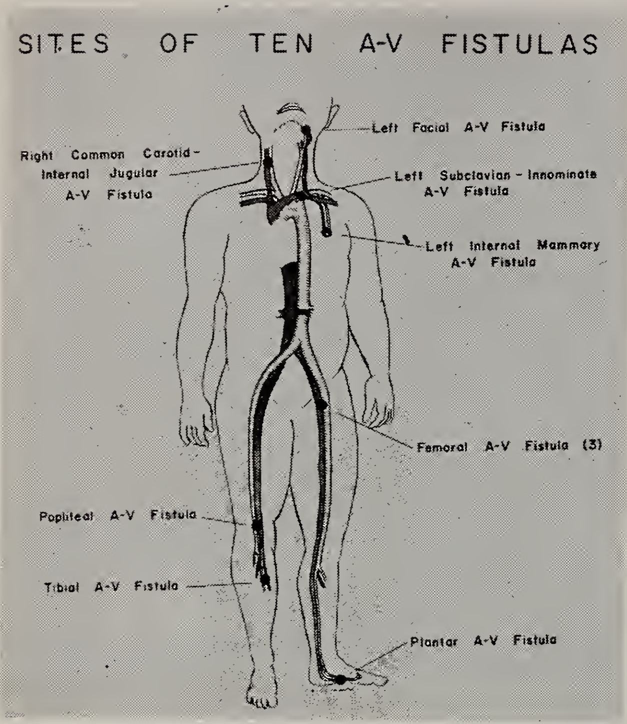

SITES OF TEN A-V FISTULAS
Left Facial A-V Fistula
Right Common Carotid - Internal Jugular A-V Fistula
Left Subclavian - Innominate A-V Fistula
Left Internal Mammary A-V Fistula
Femoral A-V Fistula (3)
Popliteal A-V Fistula
Tibial A-V Fistula
Plantar A-V Fistula

Figure 1

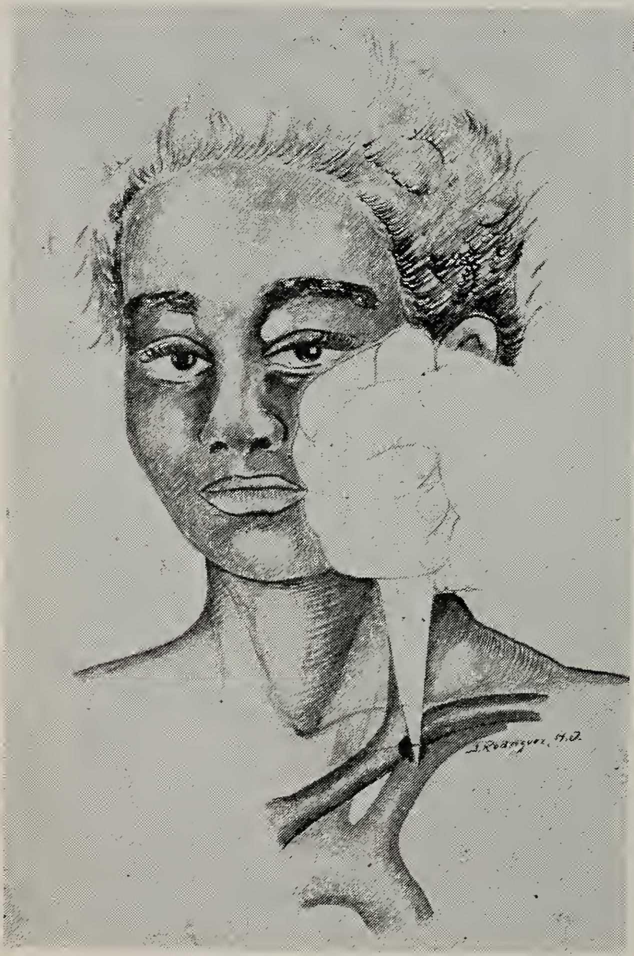

J. Rodriguez, M.D.

Figure 2

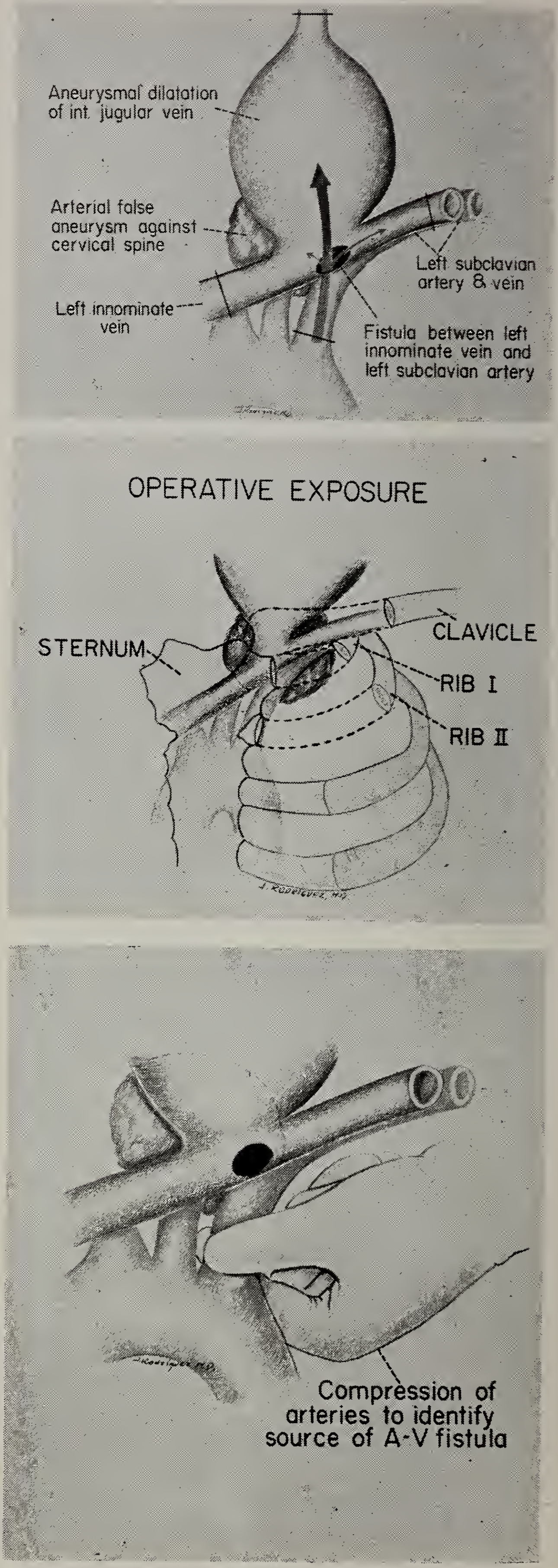

Aneurysmal dilatation of int. jugular vein
Arterial false aneurysm against cervical spine
Left subclavian artery & vein
Left innominate vein
Fistula between left innominate vein and left subclavian artery
OPERATIVE EXPOSURE
STERNUM
CLAVICLE
RIB I
RIB II
Compression of arteries to identify source of A-V fistula

Figure 3

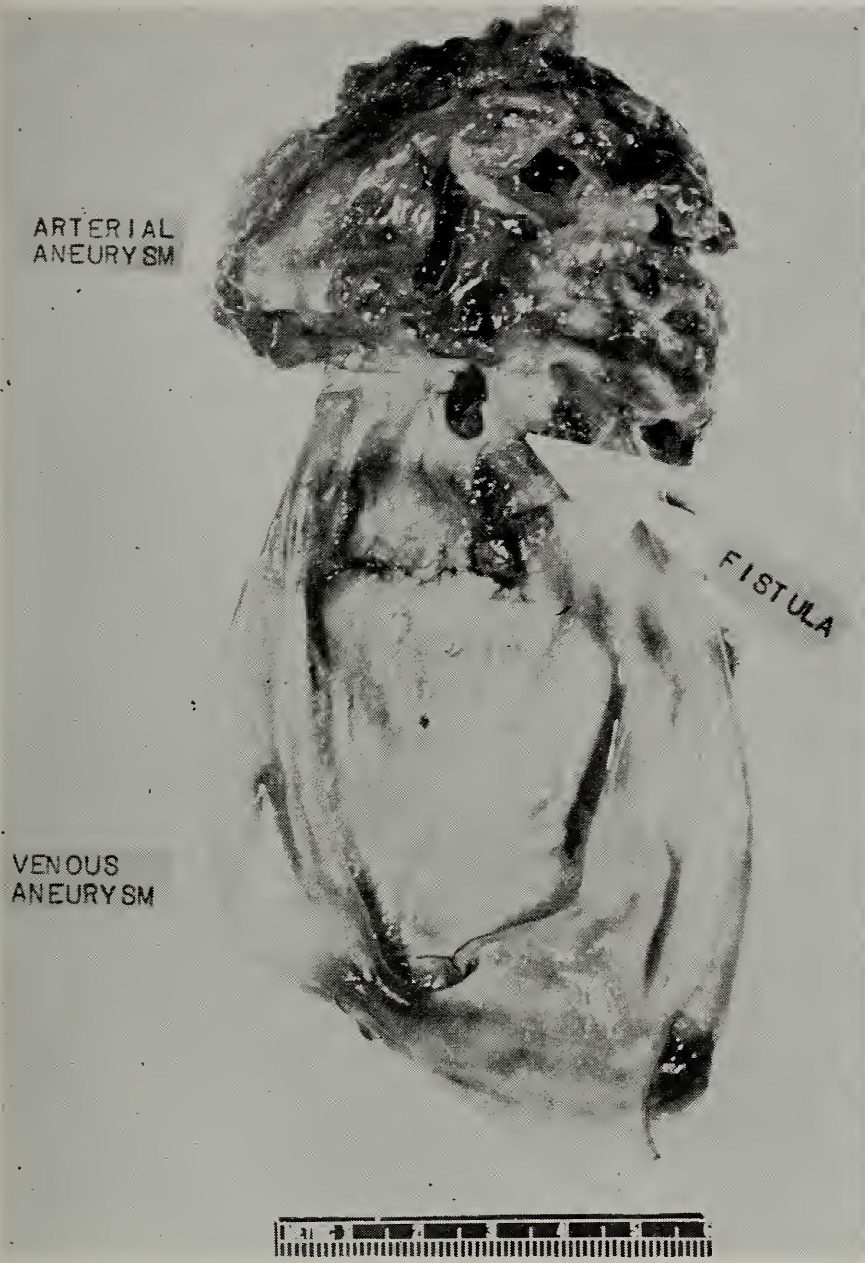
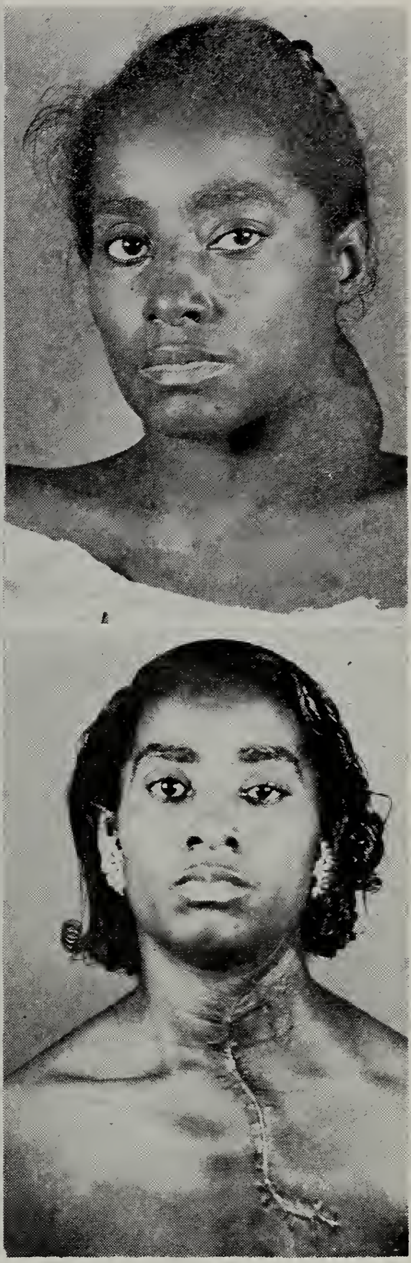


Figure 4



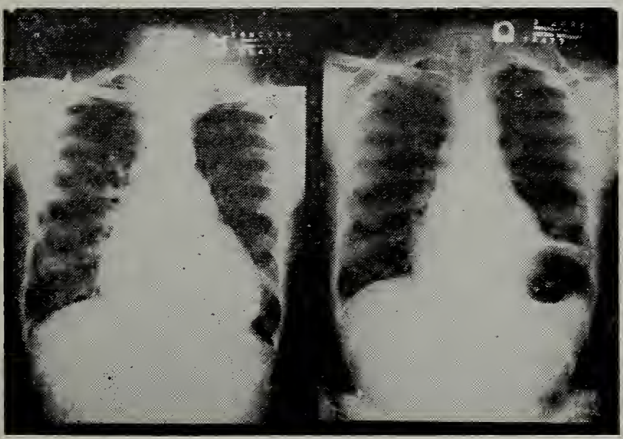


Figure 5

often found in an extmemity. The most conspicuous feature of these lesions is the sponge-like character of the vast venous lake network, but in many instances the blood from arteries finds its way directly into these large venous lakes without first passing through capillaries, constituting again an arteriovenous fistula. However, in these lesions the arteriovenous connections are far less precise and readily identified than is the instance with the other types of fistulas mentioned above.

Finally, as a last example of congenital arteriovenous fistulas, there normally exist in many organs latent arteriovenous communications which can be opened up by neurohormonal mediation under special circumstances. These have been shown to exist in the kidney and the nail beds, and they may well exist to some extent in most organs. The physiologic import of such normal fistulas need not be considered here.

PATHOPHYSIOLOGY OF LARGE TRAUMATIC ARTERIOVENOUS FISTULAS

Early Changes

The pathogenesis of a traumatic arteriovenous fistula usually begins with a knife or gunshot injury. Initially there may be only the local evidence of the traumatic wound, and the evidence that an arteriovenous fistula has been formed may appear hours, days, weeks or months or even years later. In the instance of the ones which appear some time later, it is possible that an element of infection may have been present. We have had one patient whose fistula was obvious to his local physician almost immediately following an accidental gunshot injury of the thigh, whereas in the patient to be reported as an illustrative case below the characteristic thrill and bruit, present throughout the cardiac cycle, did not appear until many months following the original stab wound.

Once the arteriovenous fistula has been established between, say, a femoral artery and a femoral vein, the increase in venous blood flow surrounding the lesion may result in venous distention and in an increased warmth of the overlying skin. There is usually some swelling from both distention and edema surrounding the lesions, and the patient himself may feel the thrill over the fistula. This short-circuiting of the usual volume of blood flow to the more distal portion of the extremity may result in a relative ischemia of the foot. More common, however, is intermittent claudication pain in the extremity on walking. This is, again, only an additional manifestation of the fact that the normal volume of blood is not reaching the distal extremity, being shunted back through the venous system at the site of the fistula. In the early period following injury the increased blood flow and perhaps associated tenderness may impart a warmth and erythema which may suggest an active infection to the inexperienced examiner, particularly if a false aneurysm is also associated with the arteriovenous fistula (Fig. 3).

When the patient with the arteriovenous fistula consults his physician, the latter will not only feel the thrill but will hear a continuous bruit over the site of the fistula. When the nature of the pathology is appreciated, firm pressure over the site of the fistula will result in obliteration of the thrill and bruit and will also result in slowing of the heart rate temporarily. There is a fall in the systolic blood pressure and a rise in the diastolic pressure. If further refinements in diagnosis are desired, one may draw blood from a vein and demonstrate an increased arterial oxygen saturation of the blood in veins surrounding the fistula, an increased pressure in the surrounding vein, and with an arteriogram one can demonstrate the fistula.

Late Changes

The ultimate effects of an arteriovenous fistula are dependent largely upon the size of the artery and vein and upon the size of the defect between them, that is, upon the volume of the blood shunted. These late changes have to do largely with the effects upon the heart, for the increased work load caused by the shunt may eventually result in cardiac decompensation. Furthermore, the stress imposed upon the heart can result in bacterial endocarditis and also in bacterial infection at the site of the fistula itself. For example, it has long been appreciated that a patent ductus arteriosus may be complicated by subacute bacterial endocarditis and that closure of the ductus can result in a cure of the infection. In 1935 Hamman and Rienhoff[1] reported a case of Streptococcus viridans septicemia that was cured by the excision of a fistula between the iliac artery and vein. In 1946 Cutler and Wolf[2] reported an acquired arteriovenous fistula with coexistent subacute bacterial endocarditis and endarteritis. Subsequently Lillehei and his associates demonstrated that subacute bacterial endocarditis can be produced experimentally in dogs by the construction of large bilateral iliac arteriovenous fistulas.

Thus, cardiac enlargement and eventually heart failure may be anticipated if a large fistula is allowed to persist indefinitely. In fact, it will be seen in the case study below that cardiac failure almost precluded successful excision of the fistula in this case. On the other hand, if the fistula is closed early enough the cardiac enlargement may be expected to diminish and most if not all of the cardiovascular derangements may return to normal without apparent long-standing sequelae.

SURGICAL CORRECTION OF ARTERIOVENOUS FISTULAS

The term "surgical correction" is used because there is no other therapy that is truly effective. Of course, some fistulas cannot be successfully corrected. First, the cavernous hemangioma of the extremity may be so extensive that surgical excision is impossible and radiation therapy is of little benefit. While one might be able to amputate the extremity, these fistulas often extend well up into the buttock and trunk, and may involve all layers including bone. Second, the patient may have delayed treatment so long that operation is not feasible. For example, if the patent ductus arteriosus is allowed to persist until pulmonary hypertension is present to a degree which approaches the pressure in the systemic arterial circulation, then successful rehabilitation will usually be precluded by postoperative heart failure. Or, cardiac failure resulting from a systemic arteriovenous fistula may be so severe that the patient cannot be brought into compensation. Actually, in the case below the preoperative cardiac compensation was far from optimal, and for a time it appeared likely that we might lose her on the operating table.

If the fistula is in a lower extremity, spinal anesthesia can be used. If it is elsewhere, however, particularly in the neck, a general anesthetic will be required.

PREOPERATIVE MEASURES. The diagnosis is made on the basis of the history, physical examination and, occasionally, with an arteriogram to demonstrate the actual site of the arteriovenous communication. However, it is rarely necessary to employ an arteriogram to demonstrate a fistula that is located in the neck or an extremity, since the communication will be directly beneath the point at which the bruit and the thrill are detected. The patient in cardiac failure will usually require digitalization, and the use of diuretics and a low salt diet are often useful. In addition, the proper instruments will need to be available for the management of the vascular problems involved and adequate amounts of blood for transfusion should be secured.

OPERATIVE APPROACH. The ease with which the fistula is approached and exposed varies enormously from one patient to another. In the patient whose injury occurred only hours or days previously, fibrosis has not had time to occur, and the planes of cleavage surrounding the fistula are easily established, after one has first secured control of the arterial and venous inflow above and below the fistula. Moreover, the acute fistula is far more amenable to simple excision of the arterial defect and restoration of arterial continuity. In the fistula that has persisted for months or years the surrounding fibrosis may be extremely dense, and one may not be able to readily remove the vein from the artery at the site of the fistula in order to close the arterial defect with a minimum amount of loss of arterial substance. Here the practice in the past has been to perform actual excision of the fistula and associated entering vessels, the artery and vein being ligated. Nevertheless, in recent years this practice has been gradually giving way to that of actual restoration of arterial continuity where advisable, whether by artorrhaphy or by use of a homograft or a prosthesis of artificial material. As for ourselves, we have found that with experience it has been possible to restore the continuity of arterial flow in the majority of instances in which this was desirable, as with a femoral arteriovenous fistula. Of course, fistulas that do not involve crucially important vessels can be managed by simple excision of the fistula and adjacent collateral channels. Technical proficiency in vascular anastomosis is best acquired in the animal laboratory.

We prefer first to secure the artery and vein proximal and distal to the fistula—with or without a pneumatic tourniquet placed above, where feasible, but not inflated—and then to expose the fistula itself. If one traces the artery downward and is guided by the point of maximum thrill, he will find it possible to free up the artery above and below the fistula almost to the exact site of the communication before temporarily occluding the vessels and taking down the fistula. No particular risk to the extremity is involved where occlusion of the artery is maintained for less than one hour.

Where at all possible, continuity of important arteries should be restored, with or without a graft. If the fistula has persisted many months one can at times perform quadruple ligation and excision of an extremity fistula and not produce relative distal ischemia, for collateral circulation will have had time to increase. Even so, some of the patients whose artery is ligated will have intermittent claudication in the extremity and will not be able to work.

Once the vein and artery have been freed up both proximal and distal to the fistula, with ligation of immediately adjacent collaterals, the vein is cut away from the artery at the point of the communication and the situation is examined, for at this point several possibilities will present themselves. First, the defect between the artery and vein may be much smaller than anticipated, involving only a relatively small portion of the arterial wall adjacent to the vein. In this instance, one can by sharp dissection excise this portion of this wall of the artery and then close the defect in the artery transversely with a 0000 or 000000 arterial silk. The vein may be similarly repaired, if desired. Second, the fistula may involve so much of the circumference of the wall of the artery that it is preferable completely to excise this segment of the artery and then to perform a formal end-to-end anastomosis of the artery with arterial silk (see Case 2, below). Third, the operator may not be able to bring the divided ends of the artery together without undue tension, and he may elect to use a homograft or synthetic prosthesis. Fourth, the operator may feel that the arterial continuity cannot be restored, or need not be, and he may choose to ligate both ends of the artery with quadruple excision of the defect. To ligate only the entering artery, without either occlusion or actual excision of the fistulous opening itself, will not completely abolish the shunt.

As for the management of the vein, this presents much less of a problem than with the artery, for the vein can usually be ligated with impunity. There may be, of course, some swelling of the distal extremity following ligation of the femoral vein, but this is not incapacitating. Even so, it is often a simple matter to repair the defect in the vein with fine silk. This avoids distal swelling of the extremity, and should be effected where possible. In our experience a successful restoration of arterial continuity is almost always associated with a good pulsation in the distal artery. If this is not present the anastomosis should be examined for defective suturing or for clotting at the line of anastomosis or adjacent to it. Occasionally there is so much spasm in the artery that, even though one can demonstrate that it is patent, a definite pulse of good volume is not felt in the foot for many hours following a femoral anastomosis. If the foot appears to remain viable one can temporize, but at times it will be advisable to re-explore the site of anastomosis under local anesthesia, for this is readily done once an incision has previously been made. Lumbar sympathectomy may prove helpful in reducing ischemic pain following quadruple ligation.

Illustrative Case: Left Subclavian Artery—Innominate Vein Arteriovenous Fistula

The following case represents many of the more serious complications and problems which may be associated with a large arteriovenous fistula. It was selected from among those illustrated in Fig. 1 because of the complex nature of the anatomy, pathophysiology, and technic (quadruple ligation and excision) required for successful management. Actually, however, the surgical procedure employed, ligation and excision, constitutes an exception to the usual practice of restoring arterial continuity.

HISTORY. A.M., a 34-year-old Negro housewife, was well until 15 years prior to admission when she was stabbed in the left supraclavicular region (Fig. 2). The laceration was closed by simple suture and no further difficulty or symptoms were experienced for five years (10 years prior to admission), at which time she was pregnant with her second child. There first appeared a soft swelling in her neck on the left (Fig. 4) and it "hummed when I touched it." Nevertheless, aside from the thrill and a buzzing sound audible to the patient, she was otherwise symptom-free except for some swelling of the legs until her third pregnancy at 17 months prior to admission, when the ankle swelling became more marked.

Several months prior to admission she began to experience definite shortness of breath, palpitation, substernal tightness, and paroxysmal nocturnal dyspnea and was forced to sleep on two pillows at night. This gradually increased in severity and was complicated about one month prior to admission by the onset of fever, chills, pain in her back, and substernal chest pain that radiated through the back, up into the left side of the neck and down the medial surface of the left arm to the elbow. Lying quite still would alleviate this pain, and exercise tended to aggravate it. The fever and chills were temporarily cleared up by medicine prescribed by her local physician, but they recurred six days prior to admission to the University Hospital on November 13, 1956. This was the final complication which caused her to agree to hospitalization and surgery.

CLINICAL FINDINGS ON ADMISSION TO THE UNIVERSITY HOSPITAL. Examination revealed a moderately well nourished, alert and cooperative young woman whose most striking finding was a large swelling on the left side of the neck which diminished in size on pressure and over which one could feel a marked thrill. She was not markedly dyspneic at rest. She appeared to be quite apprehensive and her temperature was 102° F. The blood pressure was 120/50 in the right arm and the pulse rate was 100. Auscultation of the lungs revealed grossly normal lung fields with a continuous murmur heard over the left neck mass. There was considerable cardiac enlargement (Fig. 5). It will be seen later that this cardiac enlargement was markedly diminished within a few weeks following resection of the fistula.

The tentative diagnosis was that of a large arteriovenous fistula associated with endocarditis, although the blood cultures were repeatedly negative. A catheter was introduced into the superior vena cava and the patient was given massive doses of penicillin by catheter for two weeks prior to operation and continued for a time following surgery. Meanwhile she was digitalized, and diuretics were employed to increase the rate of excretion of excess fluid. These various measures resulted in a gradual decline of the fever curve, and in a general improvement of the cardiovascular function. Nevertheless, although the patient's weight had declined several pounds due to the loss of edema, her cardiovascular status was still considered to be a precarious one at the time of operation on November 28, 1956.

OPERATION. Under endotracheal nitrous oxide and ether anesthesia the left side of the patient's neck was explored through the upper portion of the incision shown in Figure 2. Since the point of maximum thrill had seemed to be one which indicated a fistula between the left common carotid artery and the left internal jugular vein, it was anticipated that the excision of the fistula would be a relatively simple matter, and as the discussion proceeded it was found that the mass represented an enormous dilatation of the left internal jugular vein. Nevertheless, as the common carotid artery on the left was freed up and dissected away from the huge internal jugular vein, it was clear that the fistula arose at a point more proximal to the aorta. To attempt to dissect further beneath and adjacent to the clavicle and the left first rib was considered to be too hazardous without further exposure. Therefore, the clavicle and the first and second ribs were divided and a portion of each was excised to permit more direct exposure of the aortic arch and the great vessels arising from it. By means of successive palpation of the innominate, left common carotid and the left subclavian artery between the thumb and the forefinger at their points of origin from the aorta, it became clear that only compression of the left subclavian artery resulted in abolition of the thrill. The fistula was located at a point close to the origin of the left subclavian artery from the aorta. The next problem was to determine the exact nature of an arterial mass which lay between the venous lake and the spine. This proved to be a false aneurysm arising from the subclavian artery at a point opposite the arteriovenous fistula. Thus the knife causing the injury had apparently gone through the innominate vein and passed through the subclavian artery. This resulted in a communication of the subclavian artery with the innominate vein just below the junction of the left subclavian vein and the left internal jugular vein. Furthermore, a false aneurysm had arisen from the opposite side of the subclavian artery, which wall had doubtless also been penetrated by the knife. Further, there appeared to be a collection of sterile pus at this point, in addition to the old clot of the false aneurysm.

By this time the heart rate had become extremely rapid and irregular, and the anesthesiologist announced that the blood pressure had fallen to 70 mm. Hg. systolic. It was evident that the patient was bordering on cardiovascular collapse and that the operation would have to be either abandoned or completed expeditiously if we were not to produce an arrest of the markedly enlarged heart. We decided to push on as rapidly as possible, since it was felt that there would be no future opportunity to bring this patient through successful surgery. Therefore, the left subclavian artery was ligated just at its origin from the aorta and this diminished the pressure on the fistula. Next the venous lake was ligated at the upper end of the internal jugular vein and divided. This controlled the proximal arterial flow and the venous inflow from the head. Next the subclavian artery and the subclavian vein were freed up at the shoulder and were both divided and securely ligated. At this point, however, the false aneurysm, the nature of which had not been fully appreciated until this point, began to bleed fairly vigorously, and it was necessary to abandon meticulous surgery and simply to excise this mass without further concern regarding the careful exposure of the phrenic nerve. The vagus nerve had already been exposed and preserved in the exposure of the left common carotid artery and the isolation of the internal jugular lake.

When the quadruply ligated fistula had been excised, it was possible rapidly to ligate further bleeders and to establish satisfactory hemostasis in relatively short order. The left subclavian artery was then further secured at its origin from the aorta, the fistula having been between the left subclavian artery at a distance of about 1 to 1½ inches from the aorta and the left innominate vein just at the junction of the left subclavian and the left internal jugular vein, as noted previously. The remaining old clot and "purulent" material from around the false aneurysm were removed with copious irrigations of sterile solution. The wound was then closed with chromic catgut in the deeper layers and with interrupted sutures of fine steel wire in the skin.

Following excision of the fistula the cardiac function improved somewhat, and thereafter the anesthesiologist had much less difficulty in maintaining general physiologic control of the patient. The thrill was abolished.

POSTOPERATIVE COURSE. Following surgery the patient was dyspneic and for several days exhibited a rapid and irregular pulse. With quinidine therapy, however, the heart rate gradually slowed and regular rhythm was established. Wound healing was excellent. There was a moderate degree of paradoxical motion due to excision of a portion of the clavicle and the first two ribs on the left, but this portion of the chest wall stabilized within a week.

AT FOLLOW-UP six months later the heart, previously much enlarged, was found to have regained normal size, and the patient felt completely well.

COMMENT ON CASE

This case represents a classic constellation of the etiology, pathogenesis, complications, and technical factors involved in the management of a large traumatic arteriovenous fistula. First, the trauma was inflicted with a knife, and the trauma in these lesions is usually caused by either a knife or a gunshot wound. Second, a number of months elapsed (5 years, actually) before the fistula was sufficiently large to be reflected in a thrill and bruit, at least by the patient prior to medical consultation. There then elapsed almost five years before the fistula had produced cardiac decompensation which eventually forced the patient to seek medical advice. However, the final factor which decided the patient upon surgery was the development of chills and fever and pain in and around the arteriovenous fistula and the associated false aneurysm. This was likely due to a bacterial infection, though this was not conclusively proved by positive blood cultures. There were no frank vegetations in the arteriovenous communication itself (Fig. 4) and, of course, there was no opportunity to examine the heart valves in this successfully treated case.

It had been planned to restore arterial continuity following management of the A-V fistula, and this would have been technically feasible with a graft had the poor condition of the patient warranted taking time to do it. However, this was not necessary because the left subclavian artery is readily sacrificed. Furthermore, there was an enormous collateral circulation of both arteries and veins around the fistula. In fact, some of the communicating veins were as large as the subclavian and internal jugular veins normally are. By the end of several days the patient already had a faint radial pulse in the left arm, despite the fact that the left subclavian artery had been sacrificed. We also observed the return of a right radial pulse following ligation of the innominate, right common carotid, and left common carotid arteries in another patient. The critical nature of the cardiac function during surgery reflected the chronic depletion of the cardiovascular reserve and almost resulted in a cardiac arrest on the operating table.

In brief, the case emphasizes the advisability of surgical correction of an arteriovenous fistula as soon as it is diagnosed, within the limits discussed previously regarding the time required for the development of collateral circulation.

SUMMARY AND CONCLUSIONS

1. Arteriovenous (A-V) fistulas may occur anywhere in the body. They are usually traumatic in origin but they may also be congenital or infectious.
2. These lesions may produce cardiac decompensation, endocarditis or hemorrhage.
3. Surgery constitutes the primary form of management. In many if not most instances the fistula can be taken down, and normal arterial and venous continuity restored by suture of the defect in each vessel where this is desirable.

REFERENCES

1. Hamman, L., and Rienhoff, W. F., Jr.: Subacute Streptococcus viridans septicemia cured by excision of an arteriovenous aneurysm of the external iliac artery and vein. Bull. Johns Hopkins Hosp., 57:219, 1935.
2. Cutler, S. S., and Wolf, J.: Acquired arteriovenous fistula with coexistent subacute bacterial endocarditis and endarteritis. Ann. Int. Med., 25:972, 1946.
3. Lillehei, C. W., Bobb, J. R. R., and Visscher, M. B.: Occurrence of endocarditis with valvular deformities in dogs with arteriovenous fistulas. Ann. Surg., 132:577, 1950.

TO LEAD IS TO GIVE

To live with ourselves in a world daily growing more complex demands far more individual responsibility than ever before—more responsibility of leadership. The ideal of service in its deepest implication. And when we serve this ideal we use the greatest power within the grasp of man, the power of giving himself.

—The *Rotarian*

Evolving Patterns of Health Protection and Conservation *

A. L. GRAY, M.D., M.P.H.
Jackson, Mississippi

One cannot approach this subject with any great degree of detail because of the recent, present, and near future prospective alterations in the mass of scientific medical knowledge which have become, and are becoming, available. In addition the multiplied influences of social changes reflecting population trends in age groups, geographic shifting and mass attitudes of modern years and in process are bound to have tremendous influence on the methods and extent of both preventive and curative medicine in the immediate future. A real problem of today in the fields of preventive and curative medicine is in evaluating and interpreting medical history of the past few years in its broadest sense, recognizing the panorama of trends, aspirations, fears, and hopes of the consumers of preventive and curative medicine and supplying the leadership and statesmanship which will result in the best for the most consumers within the framework of a democratic society. In a democratic society, the masses shall have the right to determine their future course, but this should be on the basis of factual information.

These introductory statements are based on the fact that the fear of illness and its cost and the termination by death of many illnesses are among the most forceful factors determining our past, present, and future social attitudes. Perhaps the reason for these is the realism of termination of plans, hopes, and aspirations by unplanned-for-death and the frequent preceding incapacitating illness which totally disrupts family and community relationships of the persons involved. These feelings of urgency, hope, fear, and anxiety are the background for profits on unneeded vitamins and other broadly advertised remedies which benefit primarily the producer and seller with some small degree of emotional satisfaction to a few consumers and perhaps physical and financial detriment to many. Every person of ambition is clamoring for something today, but unfortunately few know exactly what that something is or just how to attain it. Some refer to this state of affairs as confusion or selfishness on the part of the other individuals or groups of individuals. Your speaker is thinking of this only as failure on the part of most to adapt to rapidly changing scientific and social reality as related to medicine. May I list just two of these realities among many which illustrate this point:

1. Sound preventive, diagnostic and therapeutic knowledge, methods, and techniques of today profoundly and favorably influence the length of most illnesses and chance of recovery contrasted to even twenty years ago. Hence the efforts, resources, material and financial outlay for the application of current medical knowledge in terms of value received in healthier and more productive life and postponed death are much greater today than twenty years ago per dollar spent despite a fifty per cent devaluation of the dollar. This is emphasized by the marked increase in life span, decline in total death rates, shortening of the length of most cases of acute illness, and marked increase in productiveness per person day of work.
2. Consumers of preventive and curative medicine frequently overlook the fact that commodities and services necessary to comfortable living have actually increased in cost more per unit than has been the case of medical care despite the doubling and tripling of effectiveness of such medical service. They frequently overlook the fact that just two of many major communicable diseases (malaria and syphilis) in Mississippi as recently as thirty years ago actually cost more money than is now spent on the total public health program by official and voluntary health agencies and private individuals. This does not even take into account the value of life itself.

From these and many other related basic, but recently developed, factors which led to the present, it is important that those in the private practice and publicly supported preventive and curative medicine do as much realistic anticipation of the future as possible. On the basis of present realities and anticipated scientific medical discoveries, it is squarely up to organized medicine in mutual understanding with medical practitioners of public health to make sensible plans for the future. Medical leadership in official public health agencies has an intense desire to work with organized medicine to assure the greatest possible delivery of preventive medicine in its broadest sense to all the people while at the same time conserving as much individuality of people as possible in safeguarding health and prolonging life.

---

*Presented before the Section on Preventive Medicine at the ninety-first annual meeting of the Mississippi State Medical Association, May 12-14, 1959.

At this point may I emphasize a changing concept of preventive medicine which is a part of social and scientific discoveries rapidly evolving. I suggest that private practitioners of medicine adopt this line of thought increasingly in their daily activities. Prevention is not limited to prevention of an attack of illness. It now implies shortening of illness, prolonging of life, and preventing or reducing the chronicity of incapitating illness by using all restorative procedures known at present or which may be discovered in the future. While prevention of attacks of illness remains tremendously important, there are now even greater potentials in restorative prevention because of the increasing frequency of chronic illness in our aging population. As individuals or as an increasingly complex society of people, we cannot afford to convert our national economy to totally supporting a much larger proportion of total population as complete invalids. Every disabling illness regardless of age of victim must be dealt with in such way as to restore said victim to as near self-care and independence as possible. Can one question the desirability, humaneness, or economy of this principle?

Perhaps somewhat unrelated to the statements given above, I should like to list a few of the needs which seem increasingly obvious to your speaker:

1. Organized medicine including public health physicians must supply the medical statesmanship which will lead the thinking of the nation in planning for and applying effective medical knowledge and effective service wherever it is needed. Otherwise, the medical men of the nation will be led or drawn into a large variety of isms and schemes by pressure groups on every hand. Effective statesmanship in our rapidly changing society must include a broadening field of professional vision and action to encompass all medical needs of all people of the nation. This will come about only to the extent that the private physician looks at the total medical problem rather than just individual patients and the health officer and those he directs looks at all medical needs—preventive and curative—in their efforts at applying prevention. This need demands that all medical personnel in public health be active in national, state, and local organized medical groups. It is apparent that organized medical societies have made notable progress in this direction in the last few years perhaps to a greater extent than public health officials. It is urgent that all medical personnel in public health in Mississippi become identified in their respective local and thence state medical societies.
2. With sixteen million Americans partially or totally disabled because of mental and emotional disability at staggering and rapidly increasing public expense, the urgency of much more extensive and intensive preventive and correctional programs is obvious. Tranquilizing drugs have made possible much more rapid discharge of patients from mental hospitals, but these patients in general go back into their communities without follow-up, understanding and close supervision to extend full effectiveness of knowledge at hand. The State Board of Health and county health departments stand ready to adapt their facilities and program in conjunction with private physicians and state mental and teaching hospitals to out-patient service which could prevent the necessity of much of the institutional care now inadequately provided. This will be done when legislative authorization and support make it possible. It must be done in some way and should be as a part of a total health program rather than as another separate, isolated service program. Mental and emotional illness cannot logically be separated from other health and illness problems. Families of mentally ill patients are now being rendered broad health services by health departments in Mississippi, but these services should increasingly include the pre-institutional and post-institutional mental patients under psychiatric guidance of the institutional and State Board of Health staffs on a decentralized basis.
3. Perhaps one of the greatest needs in health for children and youth today is a broadly strengthened and intensified dental health program. When up to 80 per cent of children in many classrooms today have dental defects, and there are many who do not or cannot get these defects discovered and corrected early after development of the defect, we should take a new look at the problem in its broadest aspects and act forcefully on the basis of this evaluation. To correct this disgraceful situation in a society which continually boasts of modern progress will require the following among other things:
   a. A markedly strengthened state-level staff in dental health in the State Board of

Health under the supervision of a full-time public health dentist and advice of the State Dental Association.

   b. Influences and programs which will markedly increase the number and better distribution of dentists in Mississippi. There are currently only 548 dentists in Mississippi or 25 per 100,000 population, while in the nation there are about 55 dentists per 100,000. This deficit of 30 dentists per 100,000 population will have to be corrected to a considerable extent to meet the needs of our 2,2000,000 population. Our Mississippi shortage of dentists is somewhere between 200 and 500.
   c. Every conceivable means must be used to replace the deficit of fluorine in public water supplies on a statewide basis. Otherwise, those who are preventing this because of religious fanaticism and other excuses—all without an iota of scientific justification—should provide some way of taking care of the disastrous results of fluorine deficit.

4. General health services for school children should be improved so that a greater percentage of vision, hearing, and other physical defects are discovered earlier and corrected with increasing promptness. The first step in this direction is more frequent physical examinations as a part of the public health program. This service should include greater emphasis on nutrition, not forgetting that probably the first move in nutritional correction and proper feeding should be the removal of all soft drink dispensing machines from public school buildings. These enterprises and school-connected programs financed by profits from soft drinks sold in schools are by no means as important as good nutrition and eating habits. School lunches cannot be too attractive and wholesome to those who are encouraged to, and do, have a few soft drinks at morning recess and with their lunch. Well protected safe milk should be consumed in lieu of soft drinks.
5. Little has been done in the past in real prevention of chronic illnesses and their early discovery. Heart and vascular involvements are serious, yet often insidious and undiagnosed until far advanced. Only half of the diabetes now in existence in Mississippi has been diagnosed. Most of that known is not under adequate, continuous medical supervision. Of all chronic illnesses, many cases become and remain totally or partially disabled on a permanent basis, because all that is now known in restoration is not applied for a variety of reasons. The economic loss of this deficiency to the family, community, and nation is staggering, not taking into account the cruelty of this deficiency. Private physicians and public health leadership must jointly exert their influence and resources in seeing that this situation is markedly improved.
6. The nation is rapidly moving into the atomic age with its various applications of power and radiation. In doing so our own state is becoming increasingly involved to the extent that all medical· engineering, and other public health personnel must become well informed of its uses, as well as its hazards, and defense against these hazards. Specialized leadership personnel in this field must be further developed in the framework of the State Board of Health to cope with this situation. One of the reasons for this is the increasing attitude at national levels that the control of the health hazards of atomic energy is the responsibility of the states. The next legislative session should consider this matter carefully and adopt suitable legislation to make the use of atomic energy of greatest benefit and least possible hazard to our citizens.
7. Splendid progress has been made in tuberculosis control, but not enough. It is increasingly apparent that a broadening scale of tuberculin testing is in order to ferret out new cases and potential cases. In addition, an increasingly rapid turnover of Sanatorium patients is needed to make possible surgery in more patients who have shown resistance to home treatment.

In conclusion, I have been able to mention only a few of the many evolving needs and trends which seem to be of increasing importance in preventive medicine and health conservation. Suffice it to say that new needs will parallel in number the rapid changes in social structure and scientific medical discoveries. They will have to be met with courage and adaptability of our public health forces and facilities while at the same time the present level of health protection in all fields must be maintained or even increased.

Observations on Treatment of Fractures of the Lower Extremity *

CHARLES T. BERRY, M.D.
Greenville, Miss.

It has been suggested facetiously by someone that all doctors treating fractures should at sunset face Mecca and bow three times in honor of the late Henry Ford. Certainly, there is no doubt that the modern automobile, the overcrowded highways, and the American mania for speed, have brought a new importance to the treatment of injuries.

With all this activity, the "bone setter" has come into his own. He has moved from the kitchen to the front parlor and become a specialist, with a new title, traumatic surgeon. The old splint room at the hospital has been replaced by an orthopedic section with a fancy fracture table, new splints and plaster cart, and rows on rows of cabinet space containing much expensive hardware which he can place in, around or through the bone whenever he so desires. His equipment takes up more room than that of the other surgeons, yet he never seems to have enough; for constantly newer and better methods are being developed in the orthopedic field. And now to specific fractures.

The treatments suggested are not presented as the only acceptable ones. They simply represent the methods, which I believe at the present time, give me the best results.

Fracture of the neck of the femur is universally known as the unsolved fracture. Roughly, one out of five end in failure, due in the main to impairment of blood supply. Recent attempts have been made at Campbell Clinic by injecting radioactive phosphorus intravenously preceding hip nailing operations in an effort to determine the amount of radioactivity in the head and neck as an index to existing blood supply. To date, results have been inconclusive. When union can be accomplished by nailing, results are superior to any shown by replacement prosthesis or other operative procedures. It is recognized that in non-union of the neck, prosthetic replacement is the best method of salvage, and the Thompson prosthesis is considered by many the best of the prosthetic appliances. The Crawford Adams cup is likewise considered an excellent salvage appliance for painful hips resulting from degenerative arthritis of the head of the femur following femoral neck fractures.

Nailing by the Smith Peterson tri-flanged nail alone or augmented by Knowles pins, and nailing by the so-called "bob-tailed" Jewett nail plate are universally accepted methods of treatment of this fracture. There is a powerful compression force which is unpredictable and which sometimes causes the Smith Pete nail to back up, even past the fracture site, resulting in complete failure of immobilization and of union. I have always been amazed on removing a Smith Pete nail, either early or late, at the ease with which it can be removed and how loosely it lies in its tract. Certain points should be emphasized about hip nailing by any method. The nail should be placed in the center of the head and neck and should come within one-fourth inch of the cortex of the head of the femur. Again, too large a hole drilled in the femoral cortex, prior to insertion of the guide wire, will allow the Smith Pete nail to lie loosely in its tract, making it easier for the nail to back out. Scored Kirschner guide wires should never be used as they break more easily and the nail can also be caught in the scored portion of the guide wire and thus the wire may be driven through the head and into the pelvis as one drives home the nail. Fractures of the neck of the femur in children are rare, and are best treated by multiple Knowles pins. The Smith Pete nail, even with the miniature ones, should not be used as the nails are too large and relatively blunt so that there is danger that when driven in they may fracture the small head of the femur of the child. A more common occurrence in childhood is slipped upper femoral epiphysis. This condition is best treated by multiple Knowles pins, either with blind nailing, open reduction and replacement, cunieform wedging of the neck or subtrochanteric blade plate osteotomy, depending upon the degree of slipping.

In contrast to neck fractures, practically all intertrochanteric fractures go to union. The blood supply in this area is excellent. The Jewett blade plate is a stronger appliance and thus preferable to the Neufeld nail. In the severely comminuted types, operative technique can be quite difficult. One complication that can occur is medial sliding of the entire lower fragment, allowing the blade plate to go through the head of the femur. This can be avoided at operation by buttressing the Jewett nail plate with an ordinary metal plate. Intertrochanteric fractures in children are rare and should be treated by closed methods.

Fracture of the shaft of the femur is the ideal location for the use of the intramdeullary nail. The area is limited from the distal half of the upper third to the distal half of the lower third of the shaft. The larger types of intramedullary nails are preferable. They eliminate to an extent rotary motion. Prior to introduction of the nail, a broach of the proper size should be used to ream out the medullary cavity, otherwise the nail may become wedged tightly when only partially introduced and the operator will not be able to move the nail either way. My own preference in femur nails is the Hansen Street with the Kuntscher as a second choice. The major objection to the Rush nail here is its small size and lack of strength. I have devised and had manufactured for my own use a small stop lock which is applied to the threaded portion of the Hansen Street nail. With its use, the nail is stabilized, being neither able to go up or down the marrow cavity. It also facilitates driving of the nail. Only a minimal amount of the nail is left exposed at the top of the trochanter, so that bursitis is eliminated or minimized. Fractures of the shaft of the femur in children should not be treated by intramedullary nailing and seldom by open reduction. Bryant's overhead traction for infants and small children up to age three is standard treatment. The new Stryker overhead frame is a nice addition. Russell's traction in older children is very good treatment. Body casts can sometimes be used to advantage. A word of warning is emphasized in using Bryant's traction, especially if age and weight limits are not closely observed. Traumatic ulcers around the lower legs, ankles and heels caused by excessive weight traction, can occur and lead to crippling deformities. Volkman's paralysis has even been known to occur. The elastic stretch bandage, as Ace or circular stockinette, should not be used. The looser and weaker cotton elastic or ordinary roll bandage is safer. Paradoxically, these traction ulcers seem to occur more readily on the opposite leg from the injured one. I prefer the use of flannel strips with Ace adherent glue as preferable to adhesive tape traction. For Russell's traction, three to six pounds of weight is usually sufficient to maintain reduction. Skeletal traction in the more severely comminuted cases is applied through the lower femoral condyle instead of the tibial tubercle as in adults. It must be remembered that the younger the child and the nearer the joint, the more that shortening and angulation can be accepted. Bayonet or side to side apposition is of no consequence. A small amount of shortening is even beneficial as overgrowth usually occurs.

---

*Read before the sixty-sixth semi-annual meeting of the Delta Medical Society, October 10, 1956, at Greenville, Miss.

The treatment of supracondylar fractures of the femur can become quite complicated. Skeletal traction through the tibial tubercle with a second Kirschner wire through the distal femoral fragment with direct overhead traction is the simplest and often the best method of treatment. T and Y fractures of the condyles must be approximated early by open reduction with transverse Knowles pins. It is important with the use of skeletal traction that active muscle exercise of the quadriceps group be constantly emphasized, otherwise distraction will occur. Bilateral Rush tibial nails applied in a retrograde manner through the femoral condyles can be used to advantage in treating certain supracondylar fractures. However, the nails must be identical in length and size and the curved points must cross only once. They must be inserted at exactly the same time and the final bend on each prior to insertion must be identical, otherwise distraction or side-to-side angulation can occur. Cast immobilization is necessary in addition. Certain of the comminuted fractures in this group, not suitable to the above methods, can be immobilized by a combination of Knowles pins attached to a long lateral side plate, the end of which is curved to fit the femoral condyle and the extremity supported by a body cast.

Depressed fractures of the condyles of the tibia are usually much more severe than their x-ray appearance. Open reduction, if the depression is more than minimal with elevation of the depressed fragments and transverse fixation with Knowles pins is indicated. The defect is filled with cancellous bone, a convenient source being through a trap door in the adjacent femoral condyle already exposed. A long leg cast is put on with the knee in varus strain. Weight-bearing is delayed.

Fractures of the shaft of the tibia are treated by early closed reduction and casts when the fracture can be anatomically reduced. Oblique fractures are treated by open reduction with transverse screws put in at right angles to the bone and not to the fracture line. The sliding Egger plate can at times be used here to advantage. Avoid putting screws through or near the fracture site for this will delay union and the screw will act as a foreign body.

The Lottes tibial nail is an excellent method of treating the more severe transverse or multiple fractures of the tibia. A long leg walking cast is applied after three weeks, long before there is x-ray evidence of union. Lottes has reported a large series of cases so treated with practically no non-unions. Early weight-bearing is fully protected by the nail and cast and weight-bearing stimulates union. The walking cast is one of the best treatments available to the fracture surgeon.

It has been stated that the blood supply of a muscle is increased some six to eight times by activity. Osteoporosis and disuse atrophy is minimized. Muscles quickly regain their tone and the patient is made ambulatory. Walking casts should be applied early, as soon as there is fair evidence clinically of beginning stability and when x-ray shows partial union. The walking heel should be placed not under the heel but further forward under the arch where it acts as a rocker. Short leg casts are only indicated for foot injuries, fractures of the lower third of the fibula, severe ankle sprains and late in convalescent fractures of the ankle joint. Beware of the lower third of the tibia as a spot for non-union.

Fractures of the ankle that cannot be perfectly reduced are best treated by open reduction, screw fixation and long leg casts. The ankle mortise must be restored to as near anatomical alignment as possible to prevent or minimize traumatic arthritis. The ankle joint carries more weight for its size than any other area. One must be very careful in using Rush nails with bi-malleolar ankle fractures. Do not use a Rush nail on one side only. You may get a side-to-side distraction. Fixation screws and cast immobilization is safer and preferable.

It is my opinion that all of us use too much plaster. If we did more rubbing and molding and gave the plaster a chance to dry, the cast would be lighter and still be of adequate strength. I am against the use of non-padded casts as I am very much afraid of them. I bi-valve my padded casts wherever considerable swelling is present or anticipated. It does not weaken the cast to any appreciable degree to split it if one will wait until the cast is dry. One Volkman's paralysis would be far too much. I know of nothing that brings more relief to a patient than splitting and spreading a cast that is bringing pain and discomfort because it is too tight. The most valuable instrument I now possess is the Stryker cast cutter. Doctor Stryker has saved many physicians countless hours of back-breaking toil with this blessed instrument.

For anesthesia in fracture treatment of adults, we prefer sodium pentothal for all short procedures. For children, ethylene and ether is considered the safest and best anesthetic. For poor risk patients and long operations, penothal induction and an immediate switch to ether is instituted. When the cautery is used, a closed ether system is used or nitrous oxide is substituted for ether. As a general rule, local anesthesia for fracture reduction is not satisfactory. Its use permits a change of introducing infection in an otherwise clean area and often does not give adequate relief of pain or the muscle relaxation necessary for reduction. Its use should be confined to the simpler fractures in poor risk patients.

The correct interpretation of x-ray films is essential in treating fractures. Injuries can be easily missed. X-rays of the area involved in the opposite extremity for comparison should be routine in children and is often helpful in adults. Almost everyone agrees that fluoroscopy has no place in fracture therapy. It is unsatisfactory for diagnosis and no help in treatment, most importantly, its use is dangerous to both the patient and even more so to the doctor who uses it often. Fluoroscopy should be left in the hands of the radiologist.

Individual fractures vary markedly in severity and individuals themselves vary widely in their reaction to their fracture and to the treatment. In the final analysis, good judgment of the surgeon is the most important requisite in treatment of fractures.

Although I am sure that most of you are already familiar with the various orthopedic appliances mentioned in this paper, in closing I thought it might be of interest to some of you to identify them and their use.

DISCUSSION

Dr. Myron Zane Neel (Greenville, Miss.) — I would like to compliment Doctor Berry on surveying so vast a field so well in so brief an allotted time. He has presented thee treatment of lower extremity fractures according to generally accepted teachings. My major criticism is that he has left me with little to say.

In reference to the specific treatments outlined it might be mentioned that in supracondylar and intercondylar fractures of the femur modified Jewett and Blount blade plates are available with plates shaped to fit this area. These afford a fairly rigid fixation of this type of fracture, permitting early mobilization. In femoral shaft fractures in children it is sometimes desirable after a couple of weeks in traction to apply a hip spica cast, when the local tenderness has subsided and early callus is visible on x-ray.

With Doctor Berry's permission I would like to comment on several lower extremity fractures which he did not have time to cover. In the automobile era he has mentioned we are confronted with some frequency by patellar injuries, with or without associated fractures elsewhere. These are best treated according to the severity of the injury, with partial excision of small fragments or total patellectomy in hopelessly injured bones. In either case the quadriceps mechanism is carefully repaired and should be given extensive rehabilitation to compensate for the loss of leverage in patellectomy. There are glowing reports abroad concerning the success in metal prosthetic replacement of damaged patellar articular surfaces but in most of our hands the simpler procedures will probably remain in vogue.

We now move to an area in which we have inherited a more or less fatalistic attitude. I refer to fractures of the os calcis, which we will have with us as long as men climb off the ground. We are told, with so many classifications, that os calcis fractures not requiring much treatment do well with little but that those fractures of more severity, involving the subtalar joint, do poorly even with the best of treatment, causing some to recommend primary arthrodesis. I feel that a definite contribution has been the introduction of the use of axial pin leverage and fixation of the less comminuted fractures. Perhaps we should do more open reductions of the more complex fractures, despite the technical difficulty and the unfavorable prognosis. Surely this bone should receive the benefit of as much treatment as any other. We must remember that the patient tends to recall the surgeon each time an ill-treated heel hits the ground. We can guess what the patient thinks.

The talus floats among several bones and takes considerable forces from each of these, therefore it is subject to various fractures and dislocations. It should be needless to say that if it cannot be more or less anatomically reduced by closed manipulation it deserves open treatment, with a guarded prognosis because of the incidence of aseptic necrosis in neck fractures. Tarsal and metatarsal fractures may be complex but usually can be reduced by manipulation and held by carefully molded casts. The more unstable fractures in the metatarsals respond well to traction incorporated in the cast. Most phalangeal fractures will treat themselves if placed in line and protected by a shoe or cast.

In injuries of the lower extremities the basic principles of fracture treatment are of particular importance because here a certain amount of stability is imperative, in addition to the mobility desired in the uppers. In the legs the static strain of a malunited fracture may give rise to a train of aches and pains even in distant parts. The gait and attitude of the patient is altered and the abnormality is poorly concealed. The patient is often more conscious than the surgeon of the reasonable expectation that his legs should look and act alike even after a fairly severe injury.

Doctor Berry has outlined some acceptable methods of treatment of common fractures and I have tried to supplement them. He has correctly emphasized the fact that the individual fracture determines its own treatment. We all have been guilty at times of the word fallacy of considering the term "conservative" as being synonymous with "closed" in applying to the operative treatment of fractures. Actually, is not the conservative treatment the one which affords the more ideal result with the least further damage? We have also been guilty occasionally of choosing a closed method rather than open surgery because of a lack of faith in our knowledge of the anatomy of the involved part. In fact, it sometimes requires a greater knowledge and grasp of the anatomy to correctly choose and execute closed treatment. Then, after having opened and nailed, plated, screwed or circled a bone, we may be further guilty of thinking that our act may somehow have speeded the healing of the bone when it actually may be hindered or halted by our meddlesome surgery. After all, the healing of bone, like pregnancy, still takes as much time as it always has. One is as justified in removing external protection of internally fixed fractures prematurely as one would be in extracting a foetus prematurely in the vain expectation that the pediatrician could pull the baby through in spite of the rash act. But the patient with a fracture is often as eager to escape immobilization as the prospective parents to determine the sex and appearance of the firstborn. The surgeon must give balance and continuity to the treatment, sometimes in the face of great odds.

Perhaps it will be belaboring the obvious but I think it would be proper to close with the repetition of well-known principles of fracture therapy. When a bone is broken it is best treated by the restoration of its anatomy as soon as feasible and by the most "conservative" means. The bone and the two adjacent joints should be held immobile while all other joints are exercised many, many times a day. The immobilization should be continued until the bone is healed by natural processes. The bone and the adjacent joints are then restored to full function by progressive rehabilitation. In some fractures the perfection of internal fixation now permits earlier joint mobility. The fracture site must still have some protection. We now have some ingenius means of covering up or correcting our mistakes. Perhaps all else in the treatment of fractures is muss and bother.

Medical Center Miscellany

The University Medical Center began its fifth school year in September with a total student body nearly three times the size of the 1955 fall enrollment.

Figures released by the registrar's office reveal that 468 men and women this fall make up the complete "learning" group in comparison to 165 in 1955. Both figures include residents and interns.

An 80-person freshman class pushed the medical school first trimester enrollment up to 274 to top last year's total by three and to more than double the September, 1955, enrollment of 135. Thirteen women, including six freshmen, brought a new high to that minority group which had previously totaled no more than eight in the medical school.

According to Registrar Lallah M. White, sophomore medical students number 69, and juniors, 61, while 64 seniors look toward graduation on June 5, 1960.

Approximately half of the medical students, 139, are married and 79 saw military service before entering medical school.

The downward trend continues in state medical education loan students with only 43 receiving state aid. In the fall of 1957, 76 were on the state loan program, 105 in 1957 and 109 in 1956.

Nine out-of-state students help swell the total registration, two each from Alabama, Florida, and New York, and one each from Illinois, Pennsylvania and Thailand. According to Board of Trustees ruling, no more than five superior out-of-state students may be accepted in any entering class. Sixty-six of Mississippi's 82 counties are represented with Hinds well in front in numbers and Lauderdale and Pike jostling for second place.

Approximately half of this year's freshman class came from Millsaps and Ole Miss combined. Mississippi College, Mississippi State and Mississippi Southern crowd for third spot with nine, eight and seven respectively.

Candidates for graduate degrees in the health sciences took a decided upswing in numbers this fall with 21 registered in the Anatomy, Biochemistry, Microbiology and Physiology departments. Fourteen of the 21 are from Mississippi. Others hail from Kentucky, Louisiana, Maine, Minnesota, New Jersey, North Carolina and Tennessee. In September, 1956, the registrar's office showed two graduate students. There were six the following fall and 17 one year ago.

Enrollment in the School of Nursing accounts for 54 of the total UMC student body. Twenty-one nursing students began their sophomore year at the Medical Center in midsummer after having completed their freshman year at an approved college or junior college. The school has 12 juniors and 12 seniors to make 45 in the B.S. degree program. Nine women are enrolled in the program for R.N.'s who wish to earn their degrees. The then Department of Nursing Education had 29 students when it moved from Oxford to the Medical Center campus in 1956.

Eight x-ray technologists and 19 medical technologists were at work in those divisions in September, 1959. Neither division had been activated when the school opened in 1955.

Completing the "learning" group are 23 interns, previously announced, and 69 residents in comparison with 12 and 14 respectively in September, 1955.

Pathologists Appointed

Two new pathologists joined the University Medical Center staff in late summer. They are Dr. Joel G. Brunson, named professor of pathology and chairman of the department, and Dr. Robert R. Gatling, associate professor. They bring the staff to four, including Dr. William Hare, professor, and Dr. Catherine Goetz, associate professor.

Dr. Brunson came to the University of Mississippi School of Medicine from Minnesota where he had been an assistant professor of pathology and a United States Public Health Service senior research fellow.

His research is primarily in cardiovascular-renal disease and is supported by grants from the National Institutes of Health, USPHS, Wyeth Laboratories and the Mississippi Heart Association.

A South Carolinian by birth, Dr. Brunson attended Furman University in Greenville and got his M.D. degree from the University of Buffalo in 1950 after having served in the army from 1943 to 1946. He interned at Jefferson-Hillman hospitals in Birmingham. At Minnesota, he was a medical fellow in pathology for one year, followed by three years as an American Cancer Society fellow. He was named to the Minnesota faculty as an instructor in 1955, moving up to assistant professor two years later.

Dr. Brunson is a member of Sigma Xi, American Association of Pathologists and Bacteriologists, American Society for Experimental Pathology, International Academy of Pathology and the Society for Research on the Reticuloendothelial System.

The new associate professor, Dr. Gatling, had been a hospital pathologist in Roanoke, Va., before joining the medical school faculty.

He was born in North Carolina and graduated from Wake Forest College. He received his M.D. at Tulane in 1941 and interned at Norfolk General Hospital.

Dr. Gatling served in the navy for four years, after which he was in practice in Sewanee, Tennessee, for seven years. He began his pathology residency at Vanderbilt in 1953 and completed his specialty training at Bowman Gray.

INTERPRETING MEDICAL LITERATURE

STAFF OF REVIEW

JOSEPH P. MELVIN, Jr., M.D. .... **Cardiology**
Harvey F. Garrison, Jr., M.D. .... **Pediatrics**
JAMES D. HARDY, M.D., and STAFF, Department of Surgery, University Medical Center

CARDIOLOGY

Genetic Factors in Cardiovascular Diseases; Disorders of Primarily Genetic Etiology, by Victor A. McKussick, Johns Hopkins Hospital. *Modern Concepts of Cardiovascular Research*, Vol. 28, No. 8, August, 1959.

This interesting group of rather rare orders characterized by the genetic development of cardiovascular abnormalities can be divided into the following steps: 1) neuromuscular syndromes characterized by myotonic dystrophy, pseudo-hypertrophic progressive muscular dystrophy, Friedriechs' ataxia, familial periodic paralysis, tuberous sclerosis, Riley's dysautomonia and neurocirculatory asthenia; 2) basic connective tissue defects: Marfan's syndrome, pseudo-xanthoma elasticum, Hurler's syndrome (gargoylism), Ehlers-Danlos syndrome; 3) myocardial disorders, glycogen storage disease, familiar cardiomegaly, hemochromotosis, and primary systemic amyloidosis.

All of these syndromes are characterized by cardiac involvement such as cardiomegaly, bundle branch block, conduction defects, and diffuse myocardial fibrosis in myotonic dystrophy (Steinert's disease). In pseudohypertrophic muscular dystrophy, the heart is usually involved and progressive cardiac enlargement and congestive heart failure, arrhythmias and thrombo-embolic disease are common. In Friedriech's ataxia, the myocardial involvement is chiefly limited to abnormalities of the electrocardiogram and functional systolic and diastolic murmurs, but pericardial effusion is found rarely.

In familiar periodic paralysis, sudden death can be attributed to cardiac paralysis during a period of hypokalemia. In tuberous sclerosis, the myocardium is the site of multiple rhabdomyomata, these tumors containing large cells bulging with glycogen and producing no symptomatic involvement of the myocardium and no ECG changes. In the heritable disorders of connective tissue, Marfan's syndrome is by far the most well-known clinically, and the basic defect of cystic necrosis of the media found in the great vessels of the heart is one of the most frequent abnormalities. Occasionally, septal defects also occur, although not as frequently as the literature would have one believe. In pseudoxanthoma elasticum, degeneration and calcification of the coronary arteries, coronary insufficiency and hypertension are frequently found, and in the Hurler syndrome, one can find heavy mucopolysaccharide deposits in the coronary arteries, the aorta and pulmonary arteries, and on the heart valves, producing valvular stenosis, regurgitation and angina pectoris with sudden death. In the Ehlers-Danlos syndrome, rupture of the aorta at an early age seems to be quite common and McKussick has accumulated four patients between the ages of 14 and 24 years with this complication. Glycogen storage disease, when involving the heart, rarely involves the liver or kidneys, and cirrhosis and skeletal muscle atrophy and weakness are not features of the cardiac type as a rule. The affected infant does not usually survive to an age of more than a few months and death is usually quite sudden without any premonitory congestive heart failure. Hemochromotosis involving the heart is well known, but it may be well to point out that in familial systemic promary amyloidosis, the heart is quite rarely involved and this condition is found usually in elderly males without any visceral involvement.

Comment: This is an extremely interesting, rather rare group of diseases characterized by cardiac involcement. This alone would justify detailed complete histories and physical examinations of every suspected cardiac patient with the constant reminder not to become too involved in purely the cardiovascular implications. All diseases involving the heart are essenially generalized diseases and every cardiologist must be a practicing internist.

SURGERY

Pulmonary Resection for Mineral Oil Granulomas—Guidry, Leslie D. and Clagett, O. Theron McDonald, John R. and Kincaid, Owings W., *Annals of Surgery*, 150: 67, 1959.

It is not widely realized that patients who continuously take mineral oil for constipation or other reasons are likely to aspirate a certain amount of this material, if unwittingly, into the funds. The irritative effect of the mineral oil results in a granulomatous lesion which can be quite extensive and even fatal. The present authors point out the roentgenographic similarity of granulomatous tumefactions resulting from mineral oil to that of certain more serious lesions such as cancer. A study of eleven cases is presented.

A symptomatic aspiration of mineral oil occurs independently of defects of deglutition and in a higher percentage of normal individuals than one might suspect. One group of workers were able to detect mineral oil droplets in the sputum or lungs of 14.6 per cent of a series of elderly patients habituated to its usage. The relative infrequency of mineral oil granulomatosis, despite the high incidence of mineral oil aspiration, is possibly due to individual sensitivity or intolerance to the oil in the lungs. Bilateral gravitation of the offending lipid into the dependent pulmonary segments furnish a valuable diagnostic sign present in some two-thirds to three-fourths of the reported cases. The pulmonary reaction to the presence of mineral oil, which actually constitutes a foreign body, varies from insignificant lipophagic consolidation of involved pulmonary segments to diffuse or localized granulomatosis; the latter is of particular concern from a diagnostic standpoint. The discontinuance of mineral oil through all its modes of self-administration reputedly prevents progression of the disease and forms the basis for conservative management of lesions resulting from this aspiration.

As a rule, the problem consists of ruling out certain more serious lesions such as bronchogenic carcinoma, once the lesion has been noted on the chest x-ray. The progression of diffuse mineral oil pneumonitis into confluent granulumatosis has been observed roentgenographically, and in this rather unique circumstance lesions indistinguishable from bronchogenic carcinoma have been treated conservatively by some physicians.

In a majority of instances, however, the therapeutic measures usually are predicated on the assumption that a malignancy may be present. Whether or not one may safely base conservative therapy on the detection of mineral oil droplets in the sputum is debatable. The droplets are at times detected when no change appears in the chest x-ray. Furthermore, the failure of routine and special methods of diagnosis to reveal the presence of malignancy does not exclude its possibility, for in most large clinics the diagnosis of carcinoma of the lungs can be made preoperatively in only from two-thirds to three-fourths of the cases: the diagnosis in the remaining percentage is made by exploratory operation. Nevertheless, the presence of bilateral disease in the bases should certainly lead one to consider the possibility of a mineral oil granulomatosis. Once one has opened the thorax, excision of the portions of the lung involved in mineral oil granuloma is favored by the authors for symptomatic or extensive pulmonary involvement, when this can be accomplished without the sacrifice of excessive amounts of normal lung tissue. The establishment of a definite diagnosis should precede any contemplated resective procedure.

Comment: Mineral oil granulomatous pneumonitis is not extremely common, but it is encountered in those who use considerable amounts of mineral oil habitually. It should always be considered in the differential diagnosis of pulmonary disease, particularly when the lesions are bilateral.

Clearly mineral oil should not be prescribed indiscriminately, for it does have this capacity to produce a lung lesion, in addition to certain other effects upon the absorptive capacity of the alimentary tract.

THE MISSISSIPPI DOCTOR

The journal with a vision which encourages a plan of delivering modern medicine to the masses at less cost to the individual and more profit to the practitioner. It champions the community hospital, the hub around which this service must be built.

Entered as second-class matter, January 19, 1926, at the post office at Booneville, Miss., under the Act of March 3, 1870. Annual subscription, $3.00.

W. H. ANDERSON, M.D. ....Editor-in-Chief
MILDRED P. ANDERSON ....Assistant Editor

MID-SOUTH POSTGRADUATE MEDICAL ASSEMBLY

W. G. Stephenson, M.D. ....President
Chattanooga, Tenn.
Omar Simmons, M.D. ....President-elect
Newton, Miss.
David E. Stewart, M.D. ....Vice-President
Brownsville, Tenn.
L. B. Otken, M.D. ....Vice-President
Greenwood, Miss.
C. G. Swingle, M.D. ....Vice-President
Marked Tree, Ark.
Thurman Crawford, M.D. ....Secretary-Treasurer
Memphis, Tenn.

Mid-South Associate Editors
H. King Wade, M.D. ....Hot Springs, Ark.
Frank M. Acree, M.D. ....Greenville, Miss.
R. L. Sanders, M.D. ....Memphis, Tenn.

MISSISSIPPI STATE MEDICAL ASSOCIATION

Stanley A. Hill, M.D. ....Corinth
President
G. Swink Hicks, M.D. ....Natchez
President-elect
Wm. E. Lotterhos, M.D. ....Jackson
Secretary
Rowland B. Kennedy ....Jackson
Executive Secretary
Wm. M. Dabney, M.D. ....Crystal Springs
Louis F. Rittelmeyer, M.D. ....Jackson
State Associate Editors

The Publication Committee is not responsible for the authenticity of opinion or statements made by authors or in communications submitted to this journal for publication. The author or communicant shall be held entirely responsible.

Address all material for publication to W. H. Anderson, M.D., 30 West Church Street, Booneville, Mississippi.

WORLD CONFERENCE ON MEDICAL EDUCATION

More than 1,500 educators from 61 different countries registered at the Palmer House in Chicago for the Second World Conference on Medical Education, August 31-Sept. 4. Delivery of scientific papers by 125 speakers from every part of the world included Russia.

Pooling of international effort in the great movement toward improved health for all mankind highlighted the Conference.

A physician from India told the Congress that higher education in the science and practice of medicine can succeed only if it can reach across national or regional boundaries.

"It is inevitable that all under-developed countries face a severe shortage of trained men, and efficient tools in all fields," said Dr. Uttamchand K. Sheth, professor of pharmacology at a medical college in Parel, Bombay, India. "Before they can raise their level to self-sufficiency, even in minor things, they cannot but depend on help and cooperation from the better placed members of the free world."

* * *

Greater advances in health and medical care could be achieved in nearly all countries if "the already available knowledge were put into action promptly and on an adequate scale," a San Juan, Puerto Rico, physician said. "Acquaintance with methods of practical and massive application of medical problems is often as equally important to foreign students as the acquiring of scientific knowledge itself."

Young scientists who come to American schools, hospitals and laboratories from the Far East to do medical research should be invited to participate in classroom teaching, a Japanese physician said.

* * *

Dr. Yoshio Kusama, dean of the School of Medicine, Keio University, Tokyo, Japan, said that these experienced workers, whose visits to the United States are sponsored by government and numerous foundations, rarely acquire teaching experience in American medical schools.

* * *

A medical educator from Portugal said that "the doctors-to-be and the just graded doctor must be taught how to regain for themselves and their patients the old prestige of medicine. While medical practice has changed in many respects since the turn of the century, the patient has not changed."

* * *

A physician from the University of El Salvador School of Medicine told a group that the void which exists between general practitioners and hospitals has worked to the detriment of the patient.

Since the general practitioner enjoys a position of friendship and confidence with the patient and his family, he is the best qualified to study the patient's disease in its full perspective, said he. "There is no reason why this relation of mutual confidence and congeniality between the doctor and his patient, which means so much in the treatment and prevention of sickness in the familiar environment, is not similarly valuable in the hospital circle," the Central American doctor said, adding: "After all, the patient goes to the hospital because his condition is getting worse, thus leaving behind his natural environment, his home, which almost always is more comfortable and soothing. Then, isn't it in this instance that the patient most needs and wants his friend, the family doctor?"

* * *

The dean of a Canadian medical school believes that the two biggest hazards threatening the quality of medical care on the North American continent today are too much dependence on drugs, and a "preoccupation with the financial aspects of medicine."

Dr. J. Wendell Macleod, dean of medicine, University of Saskatchewan, Saskatoon, Canada, said there is an "overly technical approach to the problems of the sick person—an understandable consequence of the introduction of a vast array of complicated techniques."

"The fault," he said, "is not the doctor's alone; in our technological culture the laying on of healing hands has been replaced by instrumentation. Large sections of our people clamor excessively for x-ray examinations, chemical tests and surgical procedures. Confidence in the healing power of nature has been displaced by undue dependence upon the popular drugs of the moment: vitamins, antibiotics, hormones and tranquilizers."

Referring to his second hazard, he said, "Even in respectable medical circles there is a preoccupation with the financial aspects of medicine."

* * *

Dr. Malcolm E. Phelps, a "founding father" of the American Academy of General Practice, said that surveys of medical societies and placement bureaus reveal that "there are approximately five times the demand for component general practitioners as there are for doctors trained to care for only certain segments of disease."

"This demand has been largely ignored by some of our medical schools in their headlong effort to satisfy those who advocate impersonal, mass service production line medical care," he said in addressing the Conference.

MORE ANGLES TO IT

The indigent sick is still a problem in our state and throughout the nation. The financial status of our people is somewhat better, but with the old age problem assuming ominous proportions, cost of illness promises to be more. But there are many angles to it. Time was when the average attack of appendicitis required ten to twelve days in the hospital, now the stay is four to six days. Good men once did good work for one dollar per day, but now they command a minimum of one dollar per hour or more.

At one time Mississippi owned five state charity hospitals—more than any state in the Union. Evenso, a patient in Corinth was about 200 miles from the nearest charity hospital. Other sections suffered the same disadvantage. What chance had the indigent patient with acute appendicitis, intestinal obstruction, convulsions of pregnancy, or placenta previa when 200 miles away from a charity hospital? The five state charity hospitals simply served the indigent of the counties in which they were located.

The per capita fund plan for the indigent evolved and adopted during Governor White's first administration, saved many lives and even some hospitals. Now inflation has rendered a six-dollar-per-day subsidy woefully inadequate. However, we need not destroy and discard the plan's framework. On a plan for the indigent sick the hospital and the medical profession should work in harmony, with hospital insurance aiding.

FOR MORE NURSING SCHOOLS

The immediate service challenge before the people of Mississippi is establishing six or eight nursing schools on the order of the one at Booneville. Our state has a fine system of hospitals, with more hospitals being built. It has the best system of junior colleges in the nation. By coordinating the facilities of these public institutions the training of an adequate number of nurses can be achieved. Heretofore 80 per cent of our nurses have been trained at the expense of the hospitals, many of them private hospitals yielding to the new state-appropriated institutions. We need more nurses and the new plan provides for the state to assume more of the responsibility. This plan is not very expensive for the student nurse. It will enlist fine girls and train them in the community in which they live. They will be more than likely to remain in their home community. We trust Mississippi will follow through with the new plan.

DANGER!

To say the obvious, what this country wants is ever-improving medical care — not deteriorating medical care.

And it is this fact which provides the principal basis of opposition to legislative proposals which would put the government deep into the medical care picture. A current example is the bill for providing government financed and directed hospitalization and medical benefits for people receiving Social Security payments.

SHARE OUR SUBSTANCE

Journal of Iowa State Medical Society—1958

I will look upon him who shall have taught me this Art even as one of my parents. I will share my substance with him, and I will supply his necessities, if he be in need. I will regard his offspring as my own brethren, and I will teach them this Art, if they would learn it, without fee or covenant . . . .

The lines printed above are a quotation from the Oath of Hippocrates, and each of us has given his word to act in accord with them, no less than with the other passages that require us never deliberately to cause a death and never to disclose our patients' secrets.

But what do those lines mean today? What action does the twentieth century physician promise when he recites them?

I think he promises regular and generous contributions to the support of the medical school from which he received his training—either direct gifts or gifts through the American Medical Education Foundation.

Each of us knows that inflation has brought difficulties to the medical school from which he received his degree, and nearly every one of us feels very strongly that neither his school nor any other should be driven to the extremity of beseeching the federal government to make up deficits in maintenance and salary funds, for federal subsidy means eventual federal control.

The AMEF has no administrative costs to pay, for they are met by the AMA. Thus, 100 cents of every dollar contributed to it goes to a medical school, and to a particular medical school if the donor has so earmarked his gift. The donations can be deducted from the donor's taxable income at both federal and state levels.

This year, let's act upon our promise to share our substance with the schools where we learned our Art, so that their present students may continue to have the best training possible. And since the AMEF is a subsidiary of the AMA, let's channel our gifts through it.

Walter D. Abbott, M.D.

Any doctor who is due to come into the Fifty-Year Club should send his name to Dr. A. L. Gray, executive secretary of the State Board of Health, to have his eligibility established. Mississippi has a fine list of fifty-year men. They have served well and many of them still have a keen interest in the association.

News and Comment

Dr. Frederick C. Schwartz, chairman of the Committee on Aging, Council of Medical Service of the American Medical Association, makes the big point. In his words: "Medical care is not susceptible to production-line techniques. Care for any segment of our population—the aged included—calls for a cooperative attack on the problem by nurses, doctors, hospitals, social workers, insurance companies, community leaders and others. It requires flexibility of medical technique — an ingredient which would unquestionably vanish the moment government establishes a health program from a blueprint calling for mass treatment"

Government-dominated medicine has to be mass medicine. Even if administered by the most dedicated men and women on earth, it has to be medicine by rule book. And then that all-important flexibility of which Dr. Schwartz speaks is irretrievably lost. England's socialized medicine system bears sad and abundant evidence of this.

In medicine, as in everything else, progress and freedom go together.

YAZOO CITIAN PICK OF STATE PHYSICIANS

Dr. R. J. Moorhead of Yazoo City was installed as president of the Mississippi Academy of General Practice in its annual convention at the Heidelberg Hotel in in Jackson.

Dr. Moorhead, who was president-elect, succeeds Dr. A. T. Tatum of Petal.

Newly-elected president-elect is Dr. Tom H. Mitchell of Vicksburg.

Other officers elected included Dr. F. C. Massengill of Brookhaven, vice president; Dr. John R. Bane of Jackson, re-named secretary-treasurer; Dr. William E. Lotterhos of Jackson, re-elected delegate to the American Association, and Dr. A. V. Beacham of Magnolia, re-named alternate delegate.

District directors elected were Dr. E. L. Bolton of Biloxi, Dr. Massengill of Brookhaven, Dr. Guy T. Vise of Meridian, Dr. Byron A. Mayo of Drew, and Dr. John C. Powell of Senatobia.

Scientific discussions were held during Wednesday's sessions with Dr. John P. Lindsey of Nashville, member of the board of the American Association of General Practice, the night banquet speaker.

Presentations of the Mead Johnson Scholarships were made to Dr. Benjamin F. Banahan, Jr., and Dr. Hardy B. Woodbridge, both of Jackson. The $1,000 scholarships were among 15 awarded in the

United States, with Mississippi getting two of them.

Lt. Col. Don Peters of the Medical Corps at Maxwell Air Force Base in Alabama, addressed Thursday's luncheon and at the afternoon meeting outlined "Human Factors in Space Travel."

Book Reviews

SYNOPSIS OF GYNECOLOGY—by Robert James Crossen, M. D., Daniel Winston Beacham, M.D., and Woodward Davis Beacham, M.D. Fifth edition. The C. V. Mosby Company, St. Louis, Mo., 1959. Pp. 340. Price $6.50.

All previous editions of Crossen's *Synopsis of Gynecology* were based on his textbook entitled *Diseases of Women*. However, in this edition he has enlisted Dr. Daniel W. Beacham and Dr. Woodard D. Beacham as co-authors.

This concise and comprehensive little book has manifested its popularity and attests to its quality by the five editions which it has undergone since 1932 when the first was published. The text is so generally familiar that a full review is unnecessary. The present edition differs slightly in that twelve chapters have been completely rewritten, the others rewritten, and two new chapters added—one on endometriosis and the other on pregnancy complications. New illustrations have been inserted.

In the present edition it is noteworthy that additional emphasis has been placed on data on chromosomal and hormonal factors, the use of adrenal corticoids in the treatment of pelvic infections, and current opinion on the management of uterine displacement and prolapse.

This book is recommended as a ready reference and quick review, but the reader is referred to a standard text for detailed information in the field of gynecology.

GENERAL UROLOGY—by Donald R. Smith, M.D. Second Edition. Lange Medical Publications, Los Altos, California, 1959. Pp. 328. Price $4.50.

This paper back, lithographed book provides an inexpensive, complete text for the medical student and medical practitioner who has not specialized in urology but whose practice requires a working knowledge of the diagnostic and therapeutic technics in the realm of genitourinary diseases and disorders. This book consisting of twenty-five chapters adequately provides an authoritative, clearly written text, with well-chosen and technically correct illustrations.

Extensive changes have been made in the chapters on Laboratory Examination, Specific Infections, Stones, Neurogenic Bladder, Intersexuality, and Renal Hypertension. Most of the x-ray illustrations have been replaced and appear to be much improved. These changes contribute to this new edition's being more valuable than the first.

BOOKS RECEIVED:

The books received by the *Mississippi Doctor* are acknowledged herewith.Books that appear to be of particular interest will be reviewed as space permits.

501 QUESTIONS AND ANSWERS IN ANATOMY—by Stanley Miroyiannis, B.S., M.A., Ph.D., F.A.A.S., F.I.A.S Vantage Press, Inc., New York, 1959. Pp. 332. $5.00.

A DOCTOR REMEMBERS—by Edward H. Richardson, M.D., Associate Professor Emeritus of Gynecology, the Johns Hopkins University School of Medicine, Baltimore, Maryland, Vantage Press, Inc., 1959. Pp. 252. $3.95.

INSULIN TREATMENT IN PSYCHIATRY—Proceedings of the International Conference on the Insulin Treatment in Psychiatry held at the New York Academy of Medicine, 1958—edited by Max Rinkel, M.D., and Harold E. Himwich, M.D. Philosophical Library, 1959, New York. Pp. 386. Price $5.00.

Deaths

DR. JAMES A. SLACK

Dr. James Alymer Slack, widely-known Coahoma County physician, died July 19 in Florence, Ala. Funeral services were held from Oakhurst Baptist Church with burial in Friars Point Cemetery.

Dr. Slack received his M.D. degree from Tulane University, New Orleans, La., in 1905.

DR. R. N. CROCKETT

Services for Dr. Robert Newton Crockett, 77, of Woodville, retired Wilkinson County health officer, who died at Field Community Hospital at Centreville July 26, were held at the Woodville Methodist Church with Masonic burial rites in Evergreen Cemetery.

Dr. Crockett received his degree in medicine from Memphis Hospital Medical College, Memphis, in 1911.

He retired as Wilkinson County health officer a year ago. He was a native of Tyro and had practiced there for ten years. He was a member of the Methodist Church and the Masonic Lodge.

Survivors are his wife; two sons, Dr. R. N. Crockett, Jr., of Memphis and Dr. D. W. Crockett of Fulton; three brothers, E. B. Crockett of Jackson, S. L. Crockett of Senatobia, E. N. Crockett of Memphis; and a sister, Mrs. E. C. Sturdivant of Tillatobia; and five grandchildren.

CONVALESCENT HOME OPENS

I am pleased to announce the opening of Natchez Convalescence Home at 102 Shadyside, Natchez, Mississippi, for the care of aged, infirm and convalescent patients. The house has such safety features as exit lights, fire alarm bells, and all wiring in conduit. The surroundings are homelike and pleasant. The nurses are experienced in caring for elderly people, and are patient and understanding in their efforts to make their guests comfortable and happy.

Direct inquiries to Mrs. W. A. Sullivan, 811 N. Union, Natchez, Mississippi. Telephone 5037 or 6311.

CIRCULATES AFTER NOV 30 1959

ITY OF MARYLAND LIBRARY

The MISSISSIPPI Doctor

M.S.M.A

THE MISSISSIPPI DOCTOR, NOVEMBER, 1959 NO.

> NOT IN THE *achievement, but in the endurance of the human soul, does it show its divine grandeur, and its alliance with the infinite God.*
>
> —E. H. Chapin

In This Issue

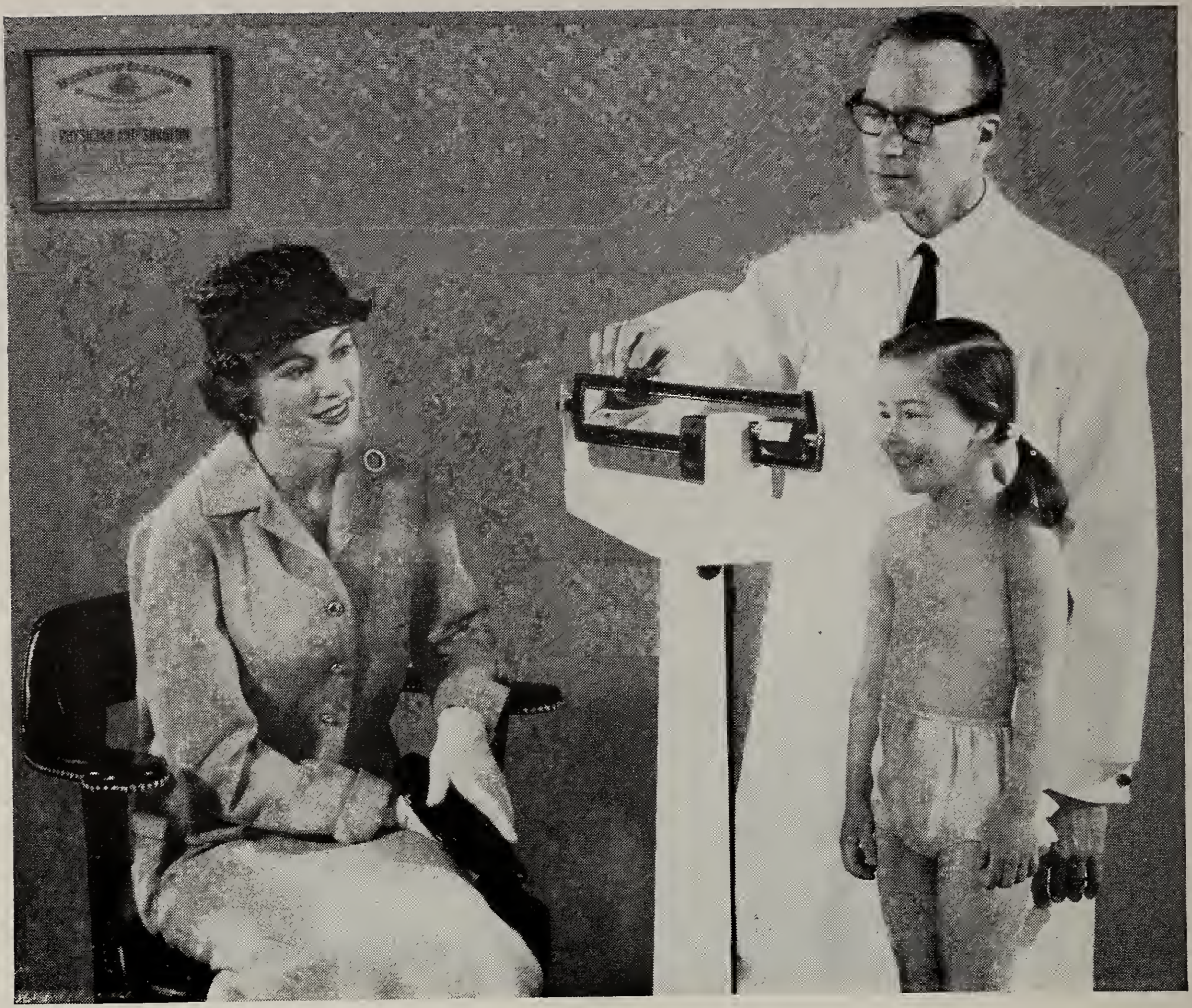
RECENT EXPERIENCES IN CARDIAC SURGERY
Sidney Birdsong, M.D., and James W. Pate, M.D.

PRACTICAL DIFFERENTIAL DIAGNOSIS OF JAUNDICE
C. G. Nichols, M.D.

UTERINE ANOMALY—WITH CASE REPORT
Carl E. Lewis, M.D.

EPIDEMIOLOGIC STUDIES BY COUNTY HEALTH DEPARTMENTS
Ruth M. Hagstrom, M.D.

CARDIAC ARREST
George L. Miller, Jr.



Underweight Children Gain and Retain Weight with Nilevar®

One of the most convincing evidences of the anabolic activity of Nilevar, brand of norethandrolone, has been its ability to improve appetite and increase weight in poorly nourished, underweight children.

A highly important feature of the weight gain thus produced is that it is not ordinarily manifested by deposition of fat but as muscle tissue resulting from the protein anabolism induced by Nilevar.

Anorexia and "Weight Lag" Study—Brown, Libo and Nussbaum have reported* consistent and definite increases in rate of weight gain in eighty-six patients, ranging in age from 7 weeks to 15½ years. This beneficial action of Nilevar was observed in the patients with organic and traumatic disorders as well as those whose only complaints were poor appetite and/or persistent failure to gain weight.

In this study, the weight gained was not lost after discontinuance of Nilevar therapy although many patients did not continue the sharp gains effected by the drug.

The authors are of the opinion that Nilevar is a highly useful anabolic agent for influencing weight gain in underweight children.

When Nilevar is administered to children a dose of 0.25 mg. per pound of body weight is recommended and continuous dosage for more than three months is not recommended.

Nilevar is supplied as tablets of 10 mg., drops of 0.25 mg. per drop and ampuls of 25 mg. in 1 cc. of sesame oil. Further dosage information in Searle Reference Manual No. 4.

G. D. Searle & Co., Chicago 80, Illinois. Research in the Service of Medicine.

---

*Brown, S. S.; Libo, H. W., and Nussbaum, A. H.: Norethandrolone in the Successful Management of Anorexia and "Weight Lag" in Children, Scientific Exhibit presented at the Annual Meeting of the American Academy of Pediatrics, Chicago, Oct. 20-23, 1958.

Recent Experiences in Cardiac Surgery

SIDNEY BIRDSONG, M.D.†
Assistant Resident
JAMES W. PATE, M.D.†
Assistant Professor, Surgery
Memphis, Tennessee

The past ten years have produced a revolution in our thinking about heart disease. This has resulted from the rapid progress of surgical therapy in this field. Lately, we have seen surgical attack on wide ranges of heart disease, both congenital and acquired. Adequate management of any patient with heart disease demands an awareness of the lesions which are now treated by surgery and something of the general risk and prognosis to be expected after surgery. This report is made to illustrate something of the spectrum of cardiac pathology which is amenable to surgical therapy, using experiences of a twelve-week period at the City of Memphis Hospitals as examples.

CONGENITAL LESIONS

The incidence of congenital heart disease is usually considered to be between 3 to 8 cases per thousand births. Due to the rather complex embryology of the heart, myriads of separate clinical entities may be produced by abnormalities in the embryology. However, from the practical viewpoint, a dozen lesions are of most importance. The exact percentage of congenital heart disease represented by each of these lesions is subject to debate. Defects in the intraventricular septum are certainly the most common of all congenital heart lesions, due to the fact that several other syndromes such as the Tetralogy of Fallot and Eisenmenger's Complex are variations of ventricular septal defects. Pure ventricular septal defects, that is those without any other marked abnormalities, probably make up from 8 to 10 per cent of all congenital cardiac lesions. In addition to these pure forms, the ventricular septal defects associated with pulmonary overflow obstruction, either valvular or infundibular, the so-called Tetralogy of Fallot, make up from 10 to 15 per cent of all congenital abnormalities of the heart. In addition to these two groups there is a third group which has an increased pulmonary resistance along with the ventricular septal defect. This produces an Eisenmenger Complex.

Probably the next most common anomaly is patent ductus arteriosus, which is usually considered to make up from 10 to 12 per cent of congenital heart lesions. Coarctation of the aorta is almost as common as patent ductus arteriosus. Defects of the interatrial septum fall in the same group as far as frequency of occurrence is concerned. After these is "pure" pulmonic stenosis which makes up around 7 to 8 per cent of congenital heart lesions. Following these lesions, transposition of the great vessels, in its forms, is probably next in frequency. This lesion is quite serious and most of these patients die in early infancy. Tricuspid atresia with nonfunctioning right ventricle, aortic stenosis, and subaortic stenosis are later in order of frequency.

Tetralogy of Fallot consists primarily of intraventricular septal defect with some obstruction to the pulmonary outflow tract. This is usually in the form of infundibular stenosis of the right ventricle and less frequently (about 15 to 20 per cent of the cases) valvular stenosis is present. The pulmonary artery may be smaller than normal, the aorta may be larger and appear to be malrotated, deriving from the right ventricle also. However, origin of the aorta from the right ventricle is not nearly as clear cut as it appears in the old literature, since any ventricular septal defect produces a functional, and to some extent anatomical, over-riding of the aorta due to the spiral of the interventricular septum.

The patient is usually cyanotic with clubbing of the fingers, and polycythemic; he may be dyspneic on exertion and show the characteristic squatting on exercise. The phenomenon of squatting, which was apparently first described by Taussig, is a good diagnostic lead and is usually seen only in Tetralogy of Fallot or in a few cases with pulmonary stenosis and a patent foramen ovale defect. The squatting produces a rapid saturation of the arterial blood whose oxygen content has been lowered by exercise. The mechanism of this increased arterial saturation is unknown but may be due to either increased return to the heart or to an increase in peripheral resistance. On x-ray, the heart is not markedly enlarged and may have a characteristic boot-shaped appearance. Catheterization data confirm the presence of a ventricular septal defect and of obstruction to the pulmonary outflow tract.

The surgical approach to Tetralogy of Fallot, first begun by Blalock and Taussig, consisted of the production of an artificial patent ductus arteriosus which would shunt blood from the subclavian artery to the pulmonary circuit, increasing pulmonary blood flow and, therefore, increasing arterial saturation. These patients' primary disability is due to the arterial unsaturation of polycythemia and rarely, if ever, do they die of pure congestive heart failure. This surgically created shunt, of the more recent Potts-Smith anastomosis between the aorta and pulmonary artery, has a marked palliative effect on these children. However, the patient still has an abnormal heart and to this we have added another defect. The various shunt procedures mentioned above usually carry a mortality from five to ten per cent and are not curative of the basic underlying pathology. Recently, therefore, attacks on Tetralogy of Fallot leading to complete repair of the defect have been carried out. If this can be done with a high degree of safety, it is certainly preferable to the shunt procedure, since we then produce an essentially normal heart and, therefore, far better palliation and certainly far better life expectancy. The operative mortality on the cardio-pulmonary by-pass or "artificial heart", in properly selected cases, approaches the mortality of the less satisfactory shunt procedures, and is at quite acceptable levels in view of the disease present. In the last three months we have operated upon two such cases on the pump, and two cases have had shunts. An illustrative case follows:

---

†Department of Surgery, University of Tennessee, and City of Memphis Hospitals, Memphis, Tennessee.

CASE I

H. W. This 2-year-old colored male had been noted to have dark lips and fingernails while crying. His general development was below average and he had frequent upper respiratory infections.

The child had been followed by the Pediatric Clinic and a loud systolic murmur had been noted over the entire precordium, but particularly over the second internal area. There was a marked systolic thrill over the second intercostal space. There was suggestive cyanosis of the nailbeds, but no clubbing. The hematocrit was 59 per cent. X-ray revealed a normal-sized heart and hypovascularity of the lung fields. The EKG revealed right ventricular hypertrophy. The patient was subjected to cardiac catheterization by Dr. Lorin Ainger, assistant professor of pediatrics. This confirmed the clinical diagnosis of Tetralogy of Fallot. The peripheral arterial oxygen saturation was 74 percent. It was elected to carry out a curative operation on this boy.

On 10-8-59, the patient was connected to the U.T. modified disc pump-oxygenator and the heart entered. Perfusion rate was above the patient's resting cardiac output. There was marked stenosis of the infundibulum of the right ventricle. This was resected. A large (2 cm. diameter) interventricular septal defect was present with considerable overriding of the aorta. This defect was closed with a patch of compressed polyvinyl sponge. There was no interference with rhythm or conduction. The ventricular incision was closed and the patient removed from the pump after 52 minutes of by-pass. The patient was awake and talking one hour later. He was sitting up 6 hours later, and eating the following day. There was no post-operative complication and he was discharged as "cured" less than two weeks after surgery.

Interventricular Septal Defects may be of two types, the membranous, which occur in the upper portion of the intraventricular septum just below the semilunar valve, or through the muscular portion of the interventricular septum. The long history of the maladie de Roger has tended to make us think of ventricular septal defects as being benign in their course. It is now felt that the location of the defect probably has little to do with prognosis and that severity is directly proportional to the size of the defect. Interventricular septal defects more than one-half square centimeter in cross-sectional area are definitely productive of symptoms and may result in serious interference with cardiac function, many complications, and early death. These patients characteristically have a shunt from the left ventricle to the right ventricle, which does not produce peripheral cyanosis, but does throw an increased work load on both the left and right ventricles. After a period of time, the pulmonary vasculature undergoes irreversible changes with increase in pulmonary vascular resistance which may progress to such a stage that the shunt is balanced or even from right to left, at which time cyanosis supervenes. At this stage, the changes in the lungs are too severe to warrant surgical attack and the patient's prognosis is very poor. Therefore, surgical approach to ventricular septal defects must be made prior to the development of irreversible pulmonary changes. The optimal age of operation for cure of ventricular septal defect probably lies between the range of 3 to 6 years. The only satisfactory procedure for this defect is repair, usually with patches of plastic, carried out on the pump oxygenator. The operative risk is reasonable and should be at least comparable to the shunt procedures for Tetralogy of Fallot. After operative repair, the heart is essentially a normal one and, therefore, we expect an excellent prognosis. Since July we have operated on three patients with this lesion.

CASE II

J. C. A 3-year-old white female was found to have murmur 6 months prior to this admission, while treated for pneumonia. She had always been underweight and had eaten poorly. She was referred to the Pediatric Cardiology Clinic, where a tentative diagnosis of IVSD was made and comfirmed by catheterization.

On 9-10-59, the patient was connected to the pump-oxygenator and the right ventricle opened. There was a 1 cm. defect in the membranous interventricular septum. This was repaired with a polyvinyl sponge and the heart closed. Rhythm and conduction remained normal. The patient awoke in less than two hours but about 3 hours post-operatively a nodal tachycardia developed which soon reverted without therapy. The postoperative course was smooth and the patient was discharged 9 days after surgery, without murmur or symptoms.

Patent ductus arteriosus was done of the first congenital heart lesions cured by surgical therapy. The clinical picture is well known, as are the complications of bacterial endocarditis, ruptured aneurysms, and pulmonary hypertension. In the absence of a definite contraindication, the presence of a patent ductus arteriosus itself is indication for surgical therapy. Surgery may consist of multiple ligations or divisions of the ductus. The operative risk is low and the prognosis is excellent. During these months, we have treated three cases by surgery.

CASE III

R.W. An 8-month-old colored male was admitted in frank heart failure. He had been asymptomatic from birth until about a month prior to admission when he had become a feeding problem, and a prominent left chest with pulsations and thrill was noted.

A diagnosis of "malignant" patent ductus arteriosus was made. He was operated upon and a ductus almost as large as the left main pulmonary artery was found and divided. He showed marked alleviation of symptoms and heart size after surgery. A grade 1 residual murmur is believed to represent a small IVSD which will be studied in a few years.

Coarctation of the aorta may occur at site in the aorta but classically, just beyond the left subclavian artery. Classification of coarctation into infantile and adult is obsolete in view of our present knowledge of the anatomy and physiology. We recognize two forms, the most common being the simple coarcation with a ligamentum arteriosum or a small patent ductus arteriosus. This lesion produces arterial hypertension in the upper part of the body. The hypertension represents more than a simple mechanical block and probably is related to the decreased renal blood flow. The left side of the heart has an increased pressure load and the ultimate outcome, if not changed by ruptured aneurysm, dissection, strokes, etc., is left ventricular failure.

Surgical therapy of this lesion consists of excision of the narrowed area, primary repair of the aorta or the interposition of an arterial graft to bridge the defect. The operative risk is relatively low and the results of surgery are excellent. These patients should probably be operated upon during puberty or early adult life. The risk of surgery rises dramatically as the patient ages.

The second type of coarctation consists of a coarctation, below which is situated a large patent ductus arteriosus which carries blood from the right ventricle thru the pulmonary arteries into the distal aorta. This produces the dramatic clinical observation of cyanosis of the legs with good color above. These lesions put an increased work load on both the right and left sides of the heart, a pressure load on the left ventricle, and a flow load on the right ventricle. Surgical treatment consists of division of the ductus arteriosus plus resection and grafting of the coarctation.

Interatrial septal defects may be divided into septum secundum type, septum primum type and the foramen ovale type. All of these have in common a defect in the inter-atrial septum with a free mixture of blood between the two atria. The shunt may be left to right, or late (or in association with other lesions) from right to left. The septum primum defect is frequently associated with defects of the valves below. The average case of ASD may live to be somewhere between 30 and 35 years of age without therapy; however, the heart has been working under a strain for this period and surgical closure of the defect is probably advisable before this time. Several closed-heart procedures such as the Sondergaard operation, the Bailey operation, or the Hufganel operation have been used for this lesion. These operations were followed by the repair of the lesion through the Gross atrial well which allowed one to work through a pool of blood to repair the defect. Hypothermia with open heart repair has been used in numerous instances; the results, in good hands, are quite satisfactory. The trend appears to be to close these defects on the "artificial heart" since direct vision repair along with a dry operative field is obtained and surgery can be done without haste. This allows one to repair any surprising defects which may be found. Abnormalities of pulmonary venous return are associated with atrial septal defects in a certain percentage of cases. Most common of these is the right pulmonary vein emptying into the superior vena cava or the right atrium. The presence of anomalous pulmonary venous return with atrial septal defect produces summation of effects so that the heart has a double insult. The heart repair of atrial septal defect is illustrated by the following cases. Since July we have done three such operations

CASE IV

In January, 1956, C.W., a 3-year-old colored female was brought to the hospital following repeated nose bleeds. A systolic murmur was heard, loudest over the right fourth intercostal area. X-ray showed slight cardiac enlargement, primarily both atria. EKG revealed a right bundle branch block with right ventricular hypertrophy. A tentative diagnosis of IASD was made.

In early 1959, cardiac catheterization confirmed this diagnosis and revealed a left to right flow of 10.4 L/min. On 7-10-59, the patient had an elective "open-heart" repair of the defect. A three cm. defect of the secundum type was found and repaired by primary suture. The postoperative course was uneventful and she was discharged 7-21-59.

CASE V

S.H., a 3-year-old white male had demonstrated very slow physical development since birth. He also had frequent episodes of respiratory infections. No cause for these symptoms was found until about 6 months prior to admission when Dr. Ainger established a diagnosis of IASD. Catheterization confirmed this diagnosis and also demonstrated an anomalous pulmonary vein from the right upper and middle lobe into the right atrium.

On 7-21-59, the patient was operated upon on the pump-oxygenator perfusing at about 150 per cent of cardiac output. A large IASD was found posteriorly and superiorly, into which area, and the lower 1 cm. of the superior vena cava, a large pulmonary vein drained. (Fig. 1) By coronally compartmentalizing the SVC and reconstructing the interatrial septum, the defect was closed with the SVC being emptied into the right atrium and the pulmonary vein, into the left atrium. The heart was open for slightly over 30 minutes. The postoperative course was uneventful and he was discharged on 7-30-59. On recheck examination about 9-5, he had gained 6 pounds and was asymptomatic, without murmur.

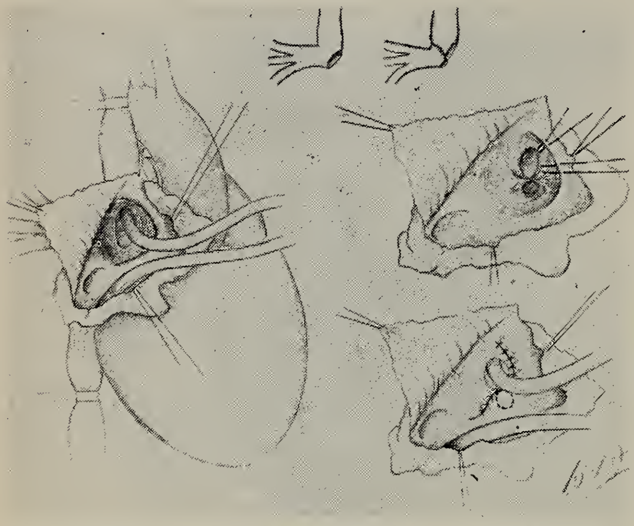


FIGURE 1. Findings and steps in operative repair of Case V.

Pulmonary stenosis was considered to be a rare lesion 10 years ago but now is found fairly commonly. This change is the result of the increased use of the cardiac catheter which demonstrates physiologic obstruction to the pulmonary outflow in cases where autopsy fails to reveal an obvious anatomical lesion. Pulmonary stenosis results in decreased blood flow in the lungs and increased strain on the right side of the heart. A shunt procedure for pulmonary stenosis is definitely contraindicated due to the fact that recirculation of fully oxygenated blood through the lungs adds nothing to oxygenization and simply increases the work load on the heart. Pulmonary stenosis, as an isolated lesion, is usually valvular in type although the infundibulum may be obstructed in a minority of cases. The valvular lesion can be corrected by the Brock procedure in which an instrument is inserted into the right ventricle, then through the valve, cutting this dome-shaped fibrous structure. This is a closed procedure and has been done for several years with fair to good results. It has the advantage of reasonable safety but the disadvantage of not allowing direct vision and by not always completely relieving the stenosis. A similar procedure with resection of the infundibulum with a biopsy-type forceps can be done for infundibular stenosis. Again, this is a blind procedure and the results are even poorer than in valvular stenosis.

The more recent approaches to the problem consist of direct-vision repair under hypothermia and particularly on the pump-oxygenator. These procedures have the great advantage of allowing direct, accurate anatomical relief of the disease with far better results. The open-heart procedure on the pump has the additional advantage of lack of time limitation thus allowing a more careful, meticulous operation to be done. This is particularly important in cases of infundibular stenosis. Thus, it appears that open heart repair of these lesions is definitely the procedure of choice as the safety of the operation increases.

CASE VI

A six-year-old white male, B.D., was admitted with chief complaint of dyspnea on exertion. Two years previously, a harsh systolic murmur was heard over the pulmonary valve area. EKG had revealed right ventricular hypertrophy and strain. X-ray showed prominence of the pulmonary artery segment. Catheterization showed about 75 mm. Hg. gradient across the pulmonary valve area.

On 9-4-59, the patient was operated upon using the pump-oxygenator. The pulmonary valve was found to have an opening of only 2-3 mm. The valve was incised along the commissures to the annulus of the valve. The valve was opened to about 1.2 cm. in diameter. Total operating time was 2 hours. There was no complication and the patient was discharged 9-13-59.

Infundibular pulmonary stenosis is preferably operated on the open-heart machine and is occasionally associated with defects producing pulmonary valvular stenosis and atresia of the main artery also. The lesion is considered to be extremely rare, about 2 cases per 1000 cases of congenital heart disease.

CASE VII

L.M.C. This 6-year-old colored female had been known to have a congenital heart lesion since soon after birth. There was a loud systolic murmur and thrill over the entire anterior chest with some deformity of the right side of the chest. X-ray showed an enlarged right ventricle with no visualization of the pulmonary artery segment. Catheterization revealed significant increase in oxygen saturation in the right ventricle. A pressure curve suggestive of infundibular stenosis was demonstrated. Femoral artery oxygen saturation was normal. It was the concensus that this patient probably represented a "pink" Tetralogy of Fallot with a very small IVSD.

On 9-24-59, the patient was explored on the pump-oxygenator. There was a diminutive right ventricular outflow tract, pulmonary valve and marked atresia of the common pulmonary artery segment. (Fig. 2) Both left and right pulmonary arteries seemed to be near normal size. The right ventricle was opened widely from near the apex, thus the 3 mm. pulmonary valve and the artery incised up to the bifurcation. The outflow tract of the right ventricle was only about 4 mm. in diameter with an enlarged CRISTA SUPRAVENTRICULARIS. A thirty-minute search was made of the entire interventricular septum for a defect. No indication of a septal defect could be found. A large polyvinyl sponge patch reinforced with pericardium was sutured in place from the bifurcation of the pulmonary artery thru the annulus of the pulmonary valve and outflow tract of the right ventricle. This enlarged the atretic area about three-fold. There was no complication and she was discharged on the 10th post-op day.

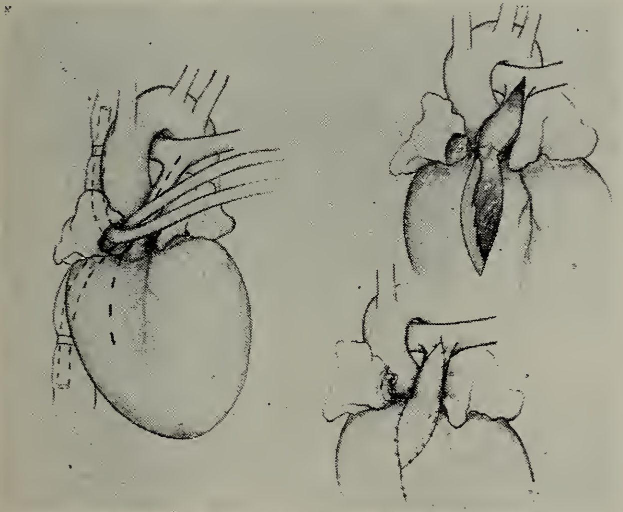


FIGURE 2. Findings and steps in repair of Case VII.

AORTIC STENOSIS in the child under 6 years of age is usually congenital in origin. In the older child, the differential diagnosis between congenital aortic stenosis and rheumatic aortic stenosis must be considered and in the adult, rheumatic aortic stenosis is more common. Congenital aortic stenosis probably makes up around 1 to 2 per cent of congenital heart lesions. There may be stenosis of the aortic valve itself or there may be sub-valvular stenosis of the aortic outflow track of the left ventricle. Surgical correction of this lesion is indicated to prevent the left ventricular failure or the sudden death from arrythmia to which these patients are particularly prone. Division of the valve has been done by closed procedure similar to the Brock operation for pulmonary stenosis but the results have left something to be desired. More recently, direct surgical attack on aortic and sub-aortic stenosis by the open-heart operation has been done with increasing safety. It is our feeling that this represents the procedure of choice in these patients and can be done with an acceptable operative risk. We have operated upon two patients with sub-aortic stenosis in the last month, with good results in both.

CASE VIII

This 12-year-old colored male was known to have had aortic stenosis for several years. His only symptoms were dyspnea on exertion and easy fatiguability. However, x-ray revealed left ventricular enlargement and EKG showed left ventricular hypertrophy and strain. There was a marked systolic thrill over most of the anterior chest. Left heart catheterization revealed a high left ventricular pressure with a large gradient across the aortic valve.

On 9-15-59, the aortic valve was approached in the arrested heart on the pump-oxygenator. The valve was found to be perfectly normal. However, about 6 mm. below the valve, in the outflow tract of the left ventricle was a membranous diaphragm having a central opening of about 3 mm. This diaphragm was resected until the finger could be passed into the heart thru this area. After the heart was restarted, ventricular fibrillation occurred but was stopped by an electric shock of 135 volts, about 1.2 amps. A normal sinus rhythm was reestablished. This course was very smooth after surgery. He was discharged on the eleventh post-op day with a grade I residual murmur.

TRICUSPID ATRESIA represents blockage to the tricuspid valve area *in utero*. Therefore, the right ventricle does not form properly, and is usually non-functioning. There is almost always a defect in the atrial septum so that blood goes from the right atrium to the left atrium, through the mitral valve and out the aorta. The little pulmonary flow which is present may pass from the left ventricle through a small interventricular septal defect into the outflow tract of the right ventricle and hence into the pulmonary artery, or it may pass from the aorta through a patent ductus arteriosus into the pulmonary artery. The right-to-left shunt results in marked cyanosis of the child and is usually associated with a left ventricular strain pattern on the electrocardiogram. Surgical therapy is directed at palliation by increasing the blood flow to the lungs. The most widely used procedure at this time is a shunt operation, either the Blalock-Taussig or the Potts-Smith type. In addition to this, the finger should be inserted into the heart to ascertain the size of interatrial septal defect, and if this defect is not large it should be extended in size to produce a better flow from the right atrium to the left atrium. This operation may yield marked palliation.

We have done three operations of this type in the last three months with excellent results. An illustrative case follows:

CASE IX

M.W., a 5-year-old colored female was admitted with a 4-year history of cyanotic congenital heart disease. She had been digitalized in May, 1958. There was considerable dyspnea, orthopnea and frequent dry cough. Work-up revealed a poorly developed, malnourished colored female who was constantly lethargic. Neck veins were considerably distended. There were moist rales over both lungs. PMI was in the 7th intercostal space, lateral to the MCL. There was a grade II systolic and diastolic murmur over the entire precordium. Liver was 4 finger-breaths below the costal margin. There was marked clubbing of digits. Catheterization showed the catheter to pass thru a ASD without difficulty The catheter could never be introduced into the right ventricle. EKG showed left ventricular hypertrophy and strain. Chest x-ray revealed a greatly enlarged globular heart with congestive changes in both lungs. Peripheral arterial oxygen saturation was 72 per cent.

A diagnosis of tricuspid atresia was made and the patient operated upon. Findings at surgery were compatible with this diagnosis. An anastomosis was made between the right subclavian artery and the right main pulmonary vein. The right auricular appendage was amputated and the interior of the heart palpated. Only a dimple could be found in the area of the tricuspid valve and a very large IASD was found. Immediately after removal of the clamp on the subclavian artery there was dramatic improvement in the patient's color. The postoperative course was very gratifying, and the good color persisted. Her mental status also seemed to improve and she has remained far more active (2½ mo.) than prior to surgery.

ACQUIRED HEART DISEASE

Mitral stenosis, usually due to rheumatic heart disease, is a common acquired lesion. Most cases probably develop indications for surgery. The operation consists of separation of the fused commissures, which carries a mortality rate of about 5 per cent. About 80 per cent patients show moderate to marked improvement. A few patients are made worse by the appearance of mild regurgitation at the time of surgery. The relative contraindications which make the procedure far more dangerous consist of mitral regurgitation and aortic valve disease. However, the presence of both mitral stenosis and aortic stenosis is not a contraindication to surgery and excellent results may follow surgery on both valves. A few cases of mitral stenosis associated with such a large degree of mitral regurgitation that commissurotomy is not indicated, may be operated upon by open techniques. Both the stenosis and regurgitation can usually be ameliorated by such a direct approach. However, due to the pathologic changes in the heart and lungs, the operative mortality is fairly high and the cases must be carefully selected for this combined procedure. Four commissurotomies have been done in these three months.

CASE X

G.A. This 22-year-old colored female suddenly developed massive pulmonary hemorrhage during pregnancy (3 mo.). She was in shock with a hematocrit of 16 per cent, on admission. By medical management and transfusions, the bleeding stopped, but was followed by congestive heart failure. A diagnosis of mitral stenosis was made. This was also medically treated. However, she aborted two months later.

She was readmitted 1 year later with pulmonary hemorrhage during pregnancy (2 mo.). She had been on close medical therapy during this year.

One week after admission, a mitral commissurotomy was done without complications. The post-op course was smooth and she has continued to carry the pregnancy without further difficulty.

Aortic Stenosis. In contradistinction to the congenital aortic stenosis of a child, the aortic stenosis which we see in the adult is usually due to rheumatic fever. The left ventricle compensates for the stenosis for long periods of time so that the disease must become quite severe before the left ventricle fails. However, when the left ventricle begins to fail, there is rapid onset of symptoms, consisting of fainting spells, dizziness, blurred vision. After the left ventricle fails, the prognosis is poor, usually measured in months. Therefore, surgical approach to the problem is mandatory. Closed procedures on the aortic valve have been done with reasonable success and an overall mortality in the vicinity of 10 per cent. More recently, open repair of aortic valve lesions have been carried out, but we do not have enough experience with this lesion to discuss it fully. The author has a series of 14 procedures done by the closed technique with two deaths and good results in most cases.

Coronary artery disease is not yet routinely treated by surgery. Severe cases of angina may have moderate to marked subjective relief of symptoms by one of several procedures. The Beck I operation and pericardial poudrage usually relieve symptoms, but the effect on the life expectancy is unknown. Surgery for angina is still within the field of clinical investigation. Experience with over a dozen such operations allows us to say that *subjective* improvement is usually impressive for two years.

SUMMARY

Exclusive of atherosclerotic and hypertensive heart disease, surgery has some place in the therapy of most cardiac lesions. This report of the experiences of a cardiac surgery service over a period of twelve weeks, with 28 patients operated upon, illustrates some of the problems now treated surgically.

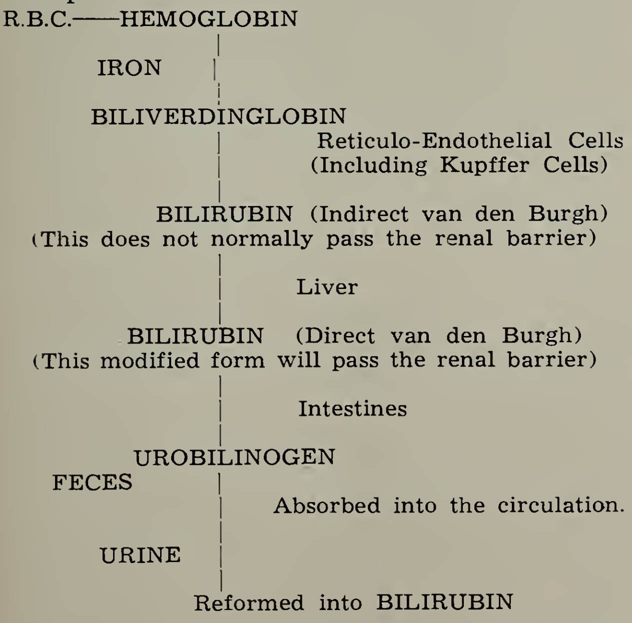
Accepting patients needing relief from *any* lesion amenable to surgery, the hospital mortality of "open heart" operations has been 8 per cent. Mortality of "closed-heart" procedures is approximately the same. Heart surgery is seen to have justified the status of routine clinical therapy and we have seen only the beginning.

Practical Differential Diagnosis of Jaundice[*]

C. G. NICHOLS, M.D.
Leland, Mississippi

This paper is not intended to add to existing knowledge. It is purely a review of a few basic fundamentals of jaundice; subject matter that is, or has been, familiar to us all. Highly technical minutiae are avoided because they have little value in the practical approach to the jaundiced patient. With the ready availability of at least minimum laboratory facilities to nearly all of us it now becomes imperative that each of us equip himself to use these services intelligently.

At the outset it is well to recall that the phenomenon that we call jaundice is due to the abnormal accumulation of pigments derived from the destruction of red blood cells that impart a yellowish or reddish hue to the body tissues when they are deposited there. Perhaps a simple review of the normal physiology of bile will help us to see more clearly what must go wrong if an abnormal concentration of these discoloring pigments is to take place.


R.B.C.——HEMOGLOBIN
IRON
BILIVERDINGLOBIN
Reticulo-Endothelial Cells
(Including Kupffer Cells)
BILIRUBIN (Indirect van den Burgh)
(This does not normally pass the renal barrier)
Liver
BILIRUBIN (Direct van den Burgh)
(This modified form will pass the renal barrier)
Intestines
UROBILINOGEN
FECES
Absorbed into the circulation.
URINE
Reformed into BILIRUBIN

It should be obvious from this scheme that excessive pigments may collect in the circulation from a number of causes. If there is an abnormally great destruction of erythrocytes, such as in hemolytic disease of the newborn, pernicious anemia, sickle-cell anemia, etc., the amount of bilirubin (indirect) formed is in excess of what the liver can handle and this excess backs up into the circulation. A second possibility that is equally obvious is a sick liver which cannot handle even the normal quantities of bilirubin produced. This occurs in such diseases as infectious hepatitis, cirrhosis, abscess, amyloid disease, atrophy, etc. Again the pigments are turned back into the blood stream in the unmodified form. Many authors have termed the above causes of jaundice "medical jaundice" as opposed to the third type which they call "surgical jaundice." In this last group are placed the mechanical causes of obstruction to the flow of bile from the liver into the intestines. Since obstruction of any but the common bile duct rarely produces jaundice we may, for practical purposes, consider only the causes for obstruction to that duct. This obstruction may be complete, as in tumor of the head of the pancreas or primary carcinoma of the common duct (rare), or incomplete, as in calculi that partially block the lumen or extrinsic tumors that impinge upon the common duct (rare). Stones in the common duct may block it completely but frequently this is intermittent because of a ball-valve action.

We now see that jaundice may be pre-hepatic, hepatic, or post-hepatic in origin and, if we keep this in mind, we have a simple basis for studying our patient. By applying the usual methods of physical diagnosis in taking a careful history and physical examination along with the usual routine laboratory procedures we might be well along in our understanding of the patient. Anemia might indicate further blood studies which may reveal a hemolytic disease. A simple foam-test on the urine, performed just by shaking the specimen, might suggest that the jaundice is post-hepatic if the test is positive because only the direct bilirubin normally filters into the urine.

---

[*] Read before the 70th semi-annual meeting of the Delta Medical Society, October 8, 1958, Greenwood, Miss.

An acutely ill child with jaundice, liver tenderness, anorexia, spiking temperature, and a history of drinking well water while camping out the month before hardly suggests cirrhosis. It would be equally unlikely for the village alcoholic to have infectious hepatitis in the face of an enlarged, nodular liver with jaundice of gradual onset. The middle-aged, obese woman with a long history of gallbladder colic who has a sudden attack accompanied by deepening jaundice and itching might well try our patience more than our diagnostic acumen. A cystic, non-tender mass in the right upper quadrant of a jaundiced man in the so-called cancer-age group would suggest carcinoma of the head of the pancreas according to Courvoisier.

But jaundice is not often so simple. It frequently fails to fall into one of these nice categories and our preliminary examination may serve only to arouse our suspicion that the biliary system is at fault. We must now do a bit of reasoning to pin-point our diagnosis.

Going back to our diagram of bile physiology we are able to deduce certain things about each of the different types of jaundice that we mentioned. In the hemolytic diseases we would expect the total serum bilirubin to be elevated with the indirect fraction accounting for most of it. Fecal urobilinogen would be markedly increased as evidenced by the dark stools and urine urobilinogen would increase to 4-plus because of increased absorption into the bloodstream.

The picture changes when there is impairment to bile flow. In cases where the liver itself is not functioning properly we again find the indirect fraction rising but the direct bilirubin is increasing also because the inflamed ductules force the modified bilirubin back into the circulation. This prompt-reacting bilirubin passes the renal barrier and bile appears in the urine in severe cases. Stools become pale due to the decreased amount of urobilinogen being formed, but, paradoxically, urinary urobilinogen increases because of the poor reabsorption by the liver.

In cases of extra-hepatic biliary obstruction we again note that the stools are pale, or actually alcoholic in complete obstructions. In this case little or no bile is getting to the small bowel, thus no urobilinogen is formed, and urinary urobilinogen is negative. Indirect bilirubin, however, is being produced in normal quantities and the liver converts it into the direct reacting type. Since this bile cannot pass into the intestines it backs up into the circulation and spills over into the urine. We now have an elevated serum bilirubin with a great increase in the prompt-reacting fraction, 4-plus bile in the urine, and negative urinary and fecal urobilinogen. If the obstruction is incomplete these findings would be modified accordingly. If the blockage is intermittent the findings will alternate between complete and incomplete obstruction.

By this time we are usually able to separate the various types of jaundice into definite categories. It hardly needs being said, however, that many cases will still defy us and our only recourse in nailing them down will be in the laboratory. Many tests have been devised for assaying liver function but a few, properly used, are particularly helpful. The Cephalin Flocculation is positive in liver damage while a markedly elevated serum Alkaline Phosphatase usually indicates obstruction. Total Cholesterol is also high in obstruction while Cholesterol-Cholesterol Ester Ratio is low in liver cell impairment. The BSP test is, I think, perhaps the best for following up cases of liver cell damage.

We may summarize our conclusions in the following manner:

Tests	*Hemolytic Jaundice*	*Sepato-Cellular*	*Obstructive-Complete*	*Obstructive-Partial*
van den Burgh (Indirect)	+ + + +	+	—	—
van den Burgh (Direct)	—	+	+ + + +	+ +
Urine Bilirubin	—	+	+	+
Urine Urobilinogen	+ + + +	+ + + +	—	+
Fecal Urobilinogen	+ + + +	+	—	+
Other	Normal Liver Funct.	Pos. Ceph. Flocc.	Alk. Phosphatase + + + +	Alk. Phosphatase + +

Epidemiologic Studies by County Health Departments[*]

RUTH M. HAGSTROM, M.D.
Starkville, Miss.

THE EPIDEMIOLOGIC studies presented here involve two unrelated outbreaks in separate counties in northeast Mississippi, the work of the investigations being carried out by the local health department staff in close cooperation with the practicing physicians of the areas.

STURGIS SCHOOL HISTOPLASMOSIS OUTBREAK

On November 12, 1958, the Oktibbeha County Health Department was notified of a case of histoplasmosis in an eleven-year-old boy who had been hospitalized at the county hospital six days previously. After talking with the family, it was thought that the source of the disease was probably an old chicken coop which for the previous two weeks had been occupied by a new puppy. The child who had contracted histoplasmosis had been in the habit of feeding and playing with the puppy in the coop.

Symptoms in the above patient consisted of sudden onset of chills and fever up to 104 degrees, along with pain in the back of the neck and a mild cough. Physical examination was entirely negative. Chest x-ray three days after onset showed findings consistent with bilateral foci of pneumonitis and also bilateral nodal enlargement. On admission to the hospital, the patient was found to have slight leukocytosis with 70 per cent lymphocytes on differential count. Urinalysis was negative. Skin tests with purified protein derivative first and second strength were negative, histoplasmin skin test was positive. Complement fixation for histoplasmosis was negative in the mycelial and 1:32 in the yeast phase. Histoplasma capsulatum was subsequently cultured from the bone marrow in this patient[*].

Six days after the above case was reported, two more cases of histoplasmosis were reported by another private physician. These two cases involved a sixth grade teacher and one of her pupils. The private physician treating these cases had elicited a history of a classroom project involving potting plants several weeks prior to illness. He also learned that an unusually large number of the children in this sixth grade were absent at the time the above cases were diagnosed. He subsequently notified the local health department and asked that an investigation be made. It was thereafter determined that the first case diagnosed and thought to be connected with an old chicken coop was a member of this same sixth grade class in Sturgis School.

Sturgis, Mississippi, is a small town of about 450 population with only one school, a white school with 12 grades and a total enrollment of 360 students. All 12 grades occupy one building—a one-story brick structure. The school has only one class per grade, the sixth grade at the time of this investigation having 32 pupils enrolled.

It was learned that on October 21, 1958, several members of the sixth grade class had participated in a project potting plants. Soil obtained from beneath a blackbird roost had been used for the planting. Although the potting had been done in the school yard, the plants as well as the sack containing the left-over soil had remained in the classroom until removed on November 18, some four weeks later, by the health department. Soil samples were obtained from the soil in the pots, from the sack, and from the blackbird roost itself. Histoplasma capsulatum was subsequently isolated from soil from flower pots and sack. Studies are still underway on soil from the roost[**].

Absences obtained from the school roll for a one-month period following the planting project afforded a list of suspects from which nine additional cases of histoplasmosis were diagnosed. Only two of the six children actually helping with the potting had clinical illnesses, and one of these exhibited only mild symptoms. It was stated that several of the class members played with the sack of left-over soil and tossed it around the room on a few occasions, affording ample opportunity for thorough dissemination of spores in the room.

Diagnosis in the nine additional cases was based on clinical symptoms and characteristic x-ray findings and/or positive complement-fixation titers.

Figure one shows the date of onset of twelve cases with clinical symptoms related to the day the soil was first brought into the room. All cases occurred from 10 to 15 days following the first day of exposure. Six males and six females were infected.

Histories of illness from the twelve diagnosed

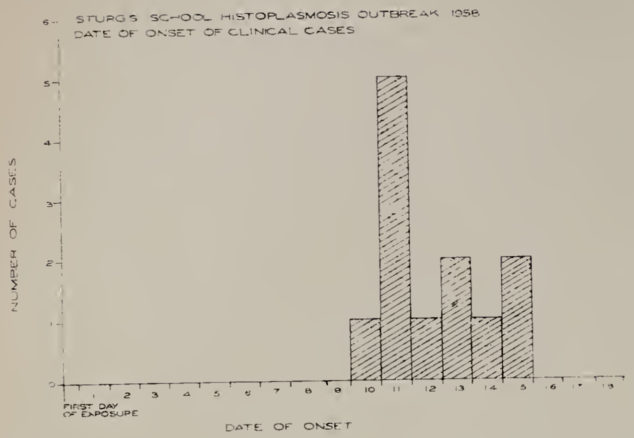
---

[*] Presented before the Section on Preventive Medicine at the ninety-first annual meeting of the Mississippi State Medical Association, May 12-14, 1959.

[*] Mr. Charles Rhea, Aberdeen Laboratory, Aberdeen, Mississippi

[**] Isolation carried out by Dr. Libero Ajello, Mycology Unit, Communicable Disease Center, Chamblee, Georgia.

FIGURE I



cases were rather similar. Ten had sudden onset of symptoms, two had vague ill defined symptoms of malaise, anorexia and low grade fever preceding the acute illness. All cases exhibited fever. Temperature in the cases where this was known ranged from about 101 to as high as 105 degrees. Nine cases had a mild non-productive cough, six had chest pain, and seven had shaking chills during the acute phase. Six cases exhibited nausea and vomiting. Abdominal pain and sore throat were complaints in a few. One patient had a papular erythematous rash over the knees, elbows, and wrists, lasting for three days of the acute illness. Acute phase of illness in these 12 cases lasted from three days to two weeks and total duration of illness from two to six weeks.

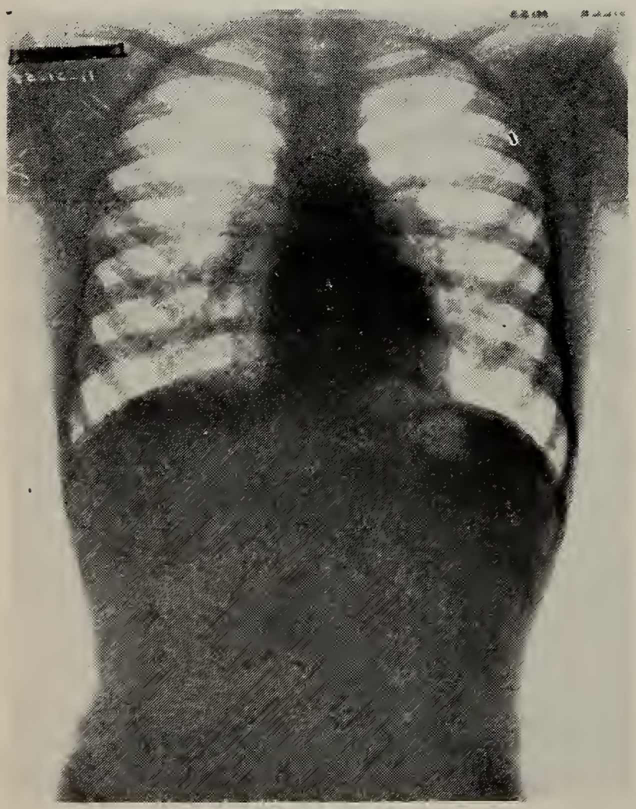


FIGURE TWO

Figure two shows typical x-ray findings of diffusely disseminated discrete infiltrations with hilar lymph node enlargement. This is characteristic of the epidemic pneumonitis type of histoplasmosis described by Furcolow in a recent review of the subject and recognized in some 41 epidemics of the disease already reported in the literature up through the present time[1].

Table I compares histoplasmin and blastomycin complement-fixation titers and chest x-ray fndings in the 12 cases described above with definite clinical illness*. Histoplasmin skin tests which were performed from one to three weeks after onset of illness were positive in all but case number five. This child's skin test was interpreted as doubtful, showing no induration but of area of erythema two centimeters in diameter. Acute blood specimens were drawn from 10 to 21 days following onset of symptoms, and convalescent specimens from two to three weeks following acute serum. X-rays were made from three to 20 days following onset of illness except in case 10 where x-ray was made one month following onset. This case 10 is the only case failing to show the characteristic extensive infiltrate on x-ray, but complement-fixation antibody titers were thought to be sufficiently high and symptoms characteristic enough to support the diagnosis.

As will be noted, complement-fixation antibody titers for blastomycosis are quite high in two of the cases (cases two and six), higher than either antigens of histoplasma capsulatum. A number of authors have recognized that histoplasma capsulatum provokes circulating antibodies which cross with other fungus antigens. Titers to the homologous antigen are usually higher than to the heterologous antigens[2]. We do not attempt to offer explanation for the situation in cases two and six. We can only point out that histoplasma capsulatum was isolated from the soil associated with this outbreak and from the bone marrow in one patient. However, this would seem to emphasize the importance of repeated complement-fixation determinations and repeated efforts at isolation of the organism particularly on the single patient not associated with an outbreak.

In nine of the 12 cases discussed above who were x-rayed three months following onset of illness, fibro-nodular densities were still present in six and slight stippled pulmonary densities in three.

---

* Serologic tests performed by State Board of Health Laboratory, Jackson, Mississippi. Chest x-ray interpretations through cooperation of Tuberculosis Control Unit, State Board of Health, Jackson, Mississippi.

TABLE I

Comparison of Complement Fixation Titers and X-Ray Findings in Children with Clinical Illness

Case No.	Histoplasmin Complement Fixation Mycelial Phase		Yeast Phase		Blastomycin Comp. Fix.		Initial Chest X-Ray
	A.*	C.**	A.	C.	A.	C.	
1.	1:32	1:16	1:128	1:64	1:64	1:64	Extensive, gross mottling throughout both lung fields, prominent hilar structures
2.	1:64	1:32	1:128	1:64	1:256	1:64	”
3.	Neg.	1:32	1:32	1:32	1:16	1:32	”
4.	Neg.	1:16	1:128	1:256	1:32	1:32	”
5.	1:32	1:32	1:128	1:256	1:128	1:64	”
6.	1:32	1:32	1:128	1:256	1:256	1:256	”
7.	1:32	1:32	1:256	1:256	1:128	1:256	”
8.	1:32	1:32	1:256	1:256	1:128	1:128	”
9.	1:64	1:64	1:256	1:256	1:256	1:256	”
10.	1:32	1:32	1:64	1:128	1:64	1:64	Questionable hilar calcif. essentially negative
11.	1:8	Neg.	1:64	1:128	1:32	1:16	Extensive, gross mottling throughout both lung fields, prominent hilar structures
12.	1:8	1:16	1:128	1:128	1:32	1:32	”

*Acute
**Convalescent

Following investigation of children in the sixth grade with severe symptoms, the remainder of the grade was skin tested with a commercial histoplasmin antigen preparation*. One-tenth milligram of antigen was injected intradermally and the reaction read at the end of 48 hours. An area of induration five or more millimeters in diameter was considered positive. All histoplasmin reactors subsequently had chest x-rays made and paired sera drawn for complement-fixation determination.

Table II shows the results of this study. Only one child in the entire grade of 32 pupils was skin test negative. Ironically enough, this child had lived all his life a few yards from the blackbird roost, and had brought the soil from which histoplasma capsulatum was isolated. He was skin tested again four months following the initial survey and was still negative.

In this group x-rays were made and acute blood drawn six weeks after the initial exposure. The convalescent specimen was taken two weeks later.

All the cases in Table II had no symptoms or so slight as to miss no more than one day of school with the exception of case number 20. This child had an illness lasting four days, consisting of slight nausea and vomiting and headache, but her symptoms were considered slight as compared to the group in Table I. Cases 4, 8, 9, 10, 11, and 14 were absent one day during a period 19 to 30 days following initial exposure with mild symptoms of sore throat, earache or vomiting.

As will be noted, six of the 20 cases in Table II had at least one complement-fixation titer against histoplasmosis of 1.64, six had titers as high as 1:32, three as high as 1:16, and four of 1:8. Only one child, case 16, showed negative values in all sera.

X-ray changes in the Table II cases were not

---

[*] Histoplasmin—Parke-Davis Company.

TABLE II

Comparison of Complement Fixation Titers and X-Ray Findings in Skin Test Positive Children with Slight or no Clinical Illness

Case No.	Blastomycin Comp. Fixation						Chest X-Ray
	Mycelial Phase		Yeast Phase				
	A.	A.	C.	A.	C.	C.	
1.	1:32	1:64	1:32	1:32	1:8	Neg.	Questionable hilar calcifications. Essentially negative film.
2.	1:32	1:64	1:32	1:64	1:32	1:64	Prominent hilar markings, enlarged lymph nodes with probable beginning calcification.
3.	1:8	1:16	1:32	1:64	Neg.	Neg.	Essentially negative with tiny calcifications at the right hilus.
4.	1:32	1:64	1:32	1:32	1:8	1:16	Negative
5.	1:32	1:32	1:32	1:32	1:8	1:8	Possible calcification in the right hilus
6.	1:32	1:32	1:32	1:64	1:16	1:16	Lymphadenopathy probably long standing in left lung root. Tiny calcifications of hilar and left apical region.
7.	1:32	1:32	1:32	1:64	Neg.	Neg.	Essentially negative. Tiny calcifications at right hilus.
8.	1:32	1:32	1:32	1:32	1:8	1:8	Tiny scattered calcifications
9.	Neg.	Neg.	1:32	1:32	Neg.	Neg.	Negative
10.	1:32	1:32	1:32	1:32	Neg.	Neg.	Tiny calcifications at right hilus
11.	Neg.	1:32	1:16	1:16	Neg.	Neg.	Negative
12.	1:8	1:16	1:8	1:16	1:16	Neg.	Tiny calcifications in lung roots and left lower lung fields.
13.	1:8	1:16	1:16	1:8	Neg.	Neg.	Hilar and pulmonary calcifications
14.	Neg.	1:8	1:8	1:8	Neg.	Neg.	Negative
15.	Neg.	Neg.	Neg.	1:8	Neg.	Neg.	Negative
16.	Neg.	Neg.	Neg.	Neg.	Neg.	Neg.	Prominent bronchovascular markings and hilar shadows, probable fibrocalcific lymph node enlargement.
17.	Neg.		1:8		Neg.		Probable beginning calcifications.
18.	Neg.		1:8		Neg.		Tiny calcifications about both lung roots.
19.	Neg.		1:16		Neg.		Questionable hilar calcifications.
20.	1:16		1:32		1:16		Calcifications of hilar lymph nodes and in right apical region.

striking. Three show some hilar lymph node enlargement. Fourteen out of the 20 show calcification, either hilar or pulmonary. There was no correlation between these x-ray findings and either high complement-fixation titers or slight clinical symptoms.

As a final phase of the study, histoplasmin skin tests were performed on members of the fifth and seventh grades of Sturgis School. Twenty-seven out of twenty-eight children in the fifth, and twenty-one out of twenty-three children in the seventh grade were skin-test positive. Histoplasmin sensitivity in the Sturgis area has been reported by other investigators to lie in the 60-80 per cent range[3].

SUMMARY

An outbreak of histoplasmosis involving a sixth grade teacher and pupils of a school in Sturgis, Mississippi, has been described. Soil obtained from underneath a blackbird roost and used in a classroom project potting plants was found to be the source of the organism, as borne out by isolation of histoplasma capsulatum from this site. Twelve cases of histoplasmosis resulted as diagnosed by clinical symptoms, skin tests, x-ray findings, and complement fixation antibody titers. Sub-clinical infection based on complement fixation antibody titers of 1:32 or 1:64 was a probable result of the exposure in at least 12 additional pupils.

SURVEY BY A LOCAL HEALTH DEPARTMENT OUTBREAK OF STAPHYLOCOCCAL DISEASE AMONG NEWBORN INFANTS

In July, 1958, the State Board of Health had been called to initiate investigation of an outbreak of staphylococcal skin infections in newborns in a fifty-three-bed general hospital in north Mississippi. A total of twenty-one known infections had occurred in infants delivered in the hospital during the preceding year. Only four of the twenty-one known infections had onsets prior to hospital discharge. A number of recommendations were made by State Board of Health representatives following the investigation which were promptly carried out.

It was felt that these control measures had been effective.

However, as it was recognized that most skin infections during this outbreak had onsets following discharge from the hospital and that this is the usual situation in such nursery epidemics, some method of survey to determine the actual number of discharged infants developing skin infections was felt desirable.

That surveys, either periodic or continuous, be made of discharged infants associated with a nursery outbreak was recommended by the National Conference on Hospital-Acquired Staphylococcal Disease in September, 1958. These recommendations mention several types of surveys including telephone, questionnaire, and routine visits by the public health nurses as being successful in previous experiences.

The telephone survey was introduced by Ravenholt[4] and has been confirmed by a number of other investigators[5] as a useful and generally a successful tool in defining the so-called "iceberg of infection" in hospital nursery epidemics.

The local health department staff, with full cooperation of hospital staff members concerned with the above mentioned nursery outbreak, undertook a telephone survey or a three-week period several months following the initial group of infections. Birth certificates received in the health department offices afforded a list from which telephone calls by the health officer were made to the mother. Calls were made approximately ten days following delivery. This interval was based on a recent investigation involving a total of 34 suppurative illnesses in newborns with onset on the average of the ninth or tenth day of life[6]. Where no phone was available for the interview, the public health nurse paid a visit to the family on or around the tenth day following delivery.

A questionnaire was compiled to be used in the interview containing unrelated questions as to feeding, sleeping habits, etc., leading to information regarding skin rashes. Mothers who reported suspicious skin rashes in their infants were asked to take the child to his private physician. The private physician was later contacted to determine if the skin rash was characteristic of the staphylococcal infections previously observed.

A total of 24 infants were delivered in the hospital in the three-week period under observation. One infant was premature and remained in the hospital several weeks without developing any infection. One premature infant weighing only one pound 15 ounces lived only two hours. The remaining 22 infants were surveyed as outlined above. Of these 22, only one infant was found to have a characteristic infectious rash by the tenth day following delivery.

This represents an attack rate of 4.5 per cent as compared with an attack rate of 16.6 per cent during a three-month period at the height of the outbreak. This would seem to indicate that control measures had been effective even though the number of cases surveyed in the three-week period is small.

In addition to this information, it is felt that this survey over a brief period of time aided in ironing out the mechanical difficulties involved in any such procedure. Should more nursery infections develop this plan of surveillance can be quickly and efficiently put back into operation with a minimal amount of confusion to all involved.

SUMMARY

A local health department's experiences with a survey for missed infections following an outbreak of staphylococcal disease among hospital nursery infants has been described. It is felt this method of survey for a brief period following an outbreak helps determine effectiveness of control measures and in addition mechanical procedures involved are given a trial so the survey can be easily put into operation when needed.

ACKNOWLEDGEMENT

Grateful acknowledgement is made to the staffs of Oktibbeha and Clay counties health departments, the practicing physicians of our area, and school officials, without whose help this paper would not have been possible. We are also grateful to Dr. Durward Blakey, director of the Division of Preventable Disease Control of the Mississippi State Board of Health for his assistance throughout these studies.

REFERENCES

1. Furcolow, M. L.: Histoplasmosis, GP 18: 117-127, Oct. 1958.
2. Loosli, C. G.: Histoplasmosis: Some clinical, epidemiological and laboratory aspects, M. Clin. North America 39:171-199, Jan. 1955.
3. Manos, N. E., Ferebee, S. H., and Kershbaum. W. F.: Geographic variation in the prevalence of histoplasmin sensitivity, Diseases of the Chest 29: 649-665, June 1956.
4. Ravenholt, R.T., and LaVeck, G.D.,: Staphylococcal disease—an obstetric, pediatric, and community problem, A. J. P. H. 46:1237, Oct. 1956.
5. Murray, W. A., McDaniel, G. D., Reed, May: Evaluation of the phone survey in an outbreak of staphylococcal infections in a hospital nursery for the newborn, A. J. P. H. 48:310-218, Mar. 1958.
6. Fekety, F. R., Buchbinder, L., Shaffer, E. L., Goldberg, S., Price, H. P., Pyle, L. A.: Control of an outbreak of staphylococcal infections among mothers and infants in a suburban hospital A. J. P. H. 48:298-309. Mar. 1958.

Uterine Anomaly—with Case Report[*]

CARL E. LEWIS, M.D.
Jackson, Miss.

CONGENITAL malformations of the female genital tract are more common than is generally believed and they are usually not recognized until they cause some complication of pregnancy or found at laparotomy or autopsy. Deviation in embryologic development may cause a wide variety of types of anomalies of the genital tract.

The fusion of the Mullerian ducts is the embryologic source of the uterus and vagina and whenever along these ducts fusions fail to occur, or where there is arrested development of one of the ducts, abnormalities develop. Complete fusion of the Mullerian ducts results in the normal uterus, cervix and vagina. Slight failure of fusion of the uppermost portion of the Mullerian ducts may produce indentation or a short septum in the uterine cavity. Still further failure of fusion of the Mullerian ducts results in a bicornate uterus. Complete lack of fusion results in a double uterus and cervix. Arrested development of one of the ducts causes the unicornate uterus. Degrees of variation of all of these are possible.

In making a diagnosis of these uterine anomalies one must have a thorough and accurate history; of utmost importance is a thorough pelvic examination and if an anomalous condition is suspected a hystero-salpingogram is indicated. Some of the important symptoms prior to pregnancy are:

1. Hypermenorrhea and polymenorrhea
2. Dysmenorrhea lasting throughout the episode of the menstrual bleeding
3. Sterility
4. Dyspareunia

During pregnancy the diagnosis is seldom made until after complications arise. These are extremely serious at times and especially if there is a pregnancy in one horn that may cause rupture of the uterus in that horn. Sometimes these are difficult to distinguish from an ectopic pregnancy. Diagnosis is usually made after 1) an abortion when a D and C is done, 2) premature rupture of the membranes and profuse bleeding with premature delivery, 3) an irregular outline of the gravid uterus due to the abnormalities of position of the fetus and placenta, and 4) bleeding during pregnancy.

Often these patients will deliver without complications but one must be alert to complications which do arise during labor. These are:

1. Uterine inertia
2. Dystocia—mostly cervical dystocia
3. Persistence of a breech presentation with incompetent labor
4. Fetal distress
5. Persistent transverse lie
6. Early or premature separation of the placenta with marked amount of bleeding
7. Incarceration of one horn of the uterus causing obstruction to the outlet
8. Impending uterine rupture or uterine rupture due to an uneven distribution of uterine muscle and misdirected force of the uterine contractions which serve to protract labor and weaken the uterine walls
9. Postpartum atony and postpartum hemorrhage
10. Retained placenta
11. Eclampsia

TREATMENT

Treatment depends on the patient's history. When the diagnosis is made of uterine malformation and where symptoms and menstruation have not been unusual treatment may depend on a previous course of pregnancy or history of sterility. Naturally the degree of deformity is a factor, although uneventful pregnancies have occurred with essentially all degrees of uterine malformations. However a history of sterility, relative sterility, habitual abortion or repeated premature labors may demand surgical correction of the anomalous condition.

Where the condition is known to exist and the patient is already pregnant conservative expectant therapy is indicated. Many will progress to full term with an uneventful labor or delivery. Because of the increased frequency of malpresentation and possible abnormalities of the uterine musculature, Cesarean section should be resorted to more freely than in similar situations in a normally formed uterus.

CASE REPORT:

Mrs. W. C. L., a $G_2\ P^0$, white female, age twenty-seven years, was first seen in October 1955 because of amenorrhea of two months' duration. Examination at that time revealed an intrauterine pregnancy of approximately seven weeks' gestation.

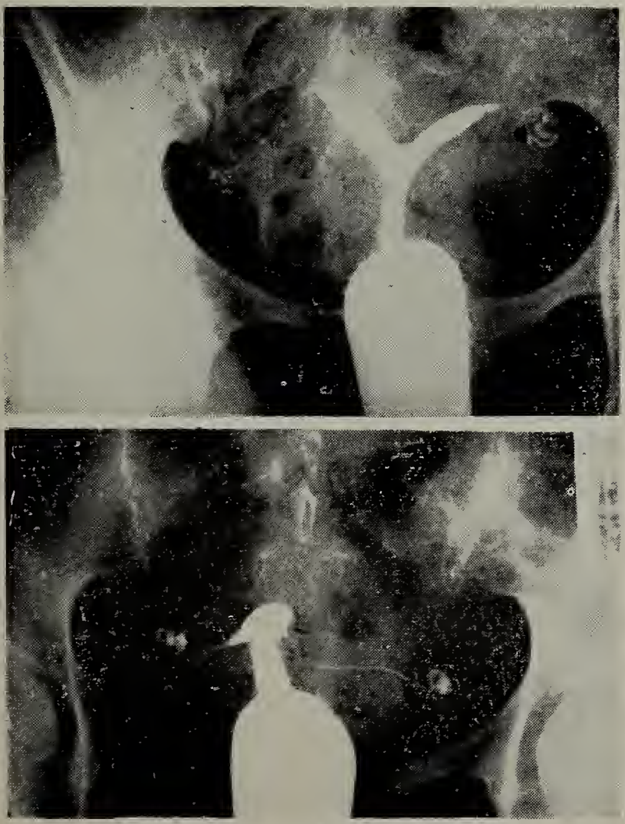
---

[*] Presented before the Section on OB-GYN at the ninety-first annual meeting of the Mississippi State Medical Association, May 12-14, 1959.

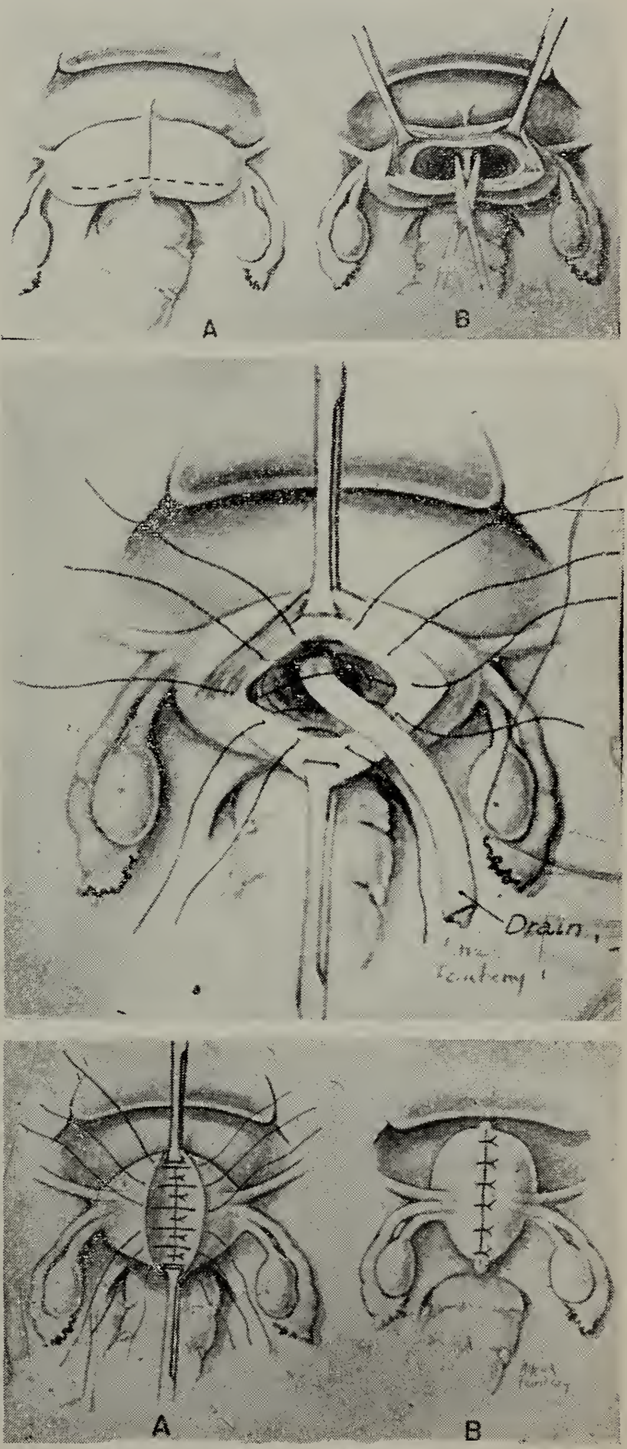
Her first pregnancy was spontaneously aborted in the twelfth week of gestation in November 1952 followed by a D and C. The second pregnancy was spontaneously aborted in the fourteenth week of gestation in March 1955, no D and C. The history in both of the previous pregnancies started with bleeding prior to the onset of any pain which she described as starting with profuse bleeding, passing of large clots, subsequently the pain developed and was rather severe. There was no history that could be obtained as to the cause of the abortions. In her past history there is no evidence of any serious illnesses either during childhood or up to the present day. There had been no surgery performed at any time except the D and C with the first abortion. Her family history is essentially negative, there being no carcinoma, diabetes, T. B., or any serious illnesses in the family. The menstrual history is one of interest in that she had been quite irregular all of her life; she had skipped as much as three or four months at a time, however, when her periods were present they were of five-day duration with a moderate flow and occasional pains. She began her menstrual periods at a late age of sixteen years and had not been too apprehensive or disturbed about her menstrual pattern.

With her pregnancy of October 1955 the patient started spotting soon after her first visit to the office. She was placed on conservative treatment. In January 1956 the patient began to bleed profusely and have severe cramping pains. Examination at that time revealed an irregular uterine mass compatible with a three- and one-half to four-month gestation that extended higher in the right pelvic region. Despite treatment the patient proceeded to abort a fetus compitable with a three- and one-half to four-month gestation. Upon abortion the uterus was explored manually and found to be a bicornate uterus. Postabortal course was within normal. Approximately four months after abortion the patient had a utero-salpingogram which revealed a beautiful example of bicornate uterus. She was then advised to have surgery to remove the septal defect and correct the bicornate uterus. On June 20, 1956, a metroplasty was done according to Strassman's technique. The postoperative course was uneventful and in October 1956 the patient was x-rayed again, the utero-salpingogram showing a normal uterine cavity with patent tubes. She was then advised to try to get pregnant.

In March 1958 the patient came in for a check-up for amenorrhea since January 1958 at which time pregnancy was suspected. A frog test the following day revealed a positive test for pregnancy. The patient was then placed on conservative management for any possibility for threatened abortion and went



BEFORE AND AFTER SURGERY



TECHNIQUE OF THE OPERATION

to term with a very uneventful course. Caesarean section was done on October 16, 1958, and a living female infant was delivered weighing six pounds. The uterus at the time of section appeared to be normal, the scar from the previous metroplasty having healed well. Her postoperative course was uneventful. Postpartal examinations found the uterus involuting well and examination approximately the middle of April 1959 showed the uterus to be well involuted, adnexa normal and menstrual periods were now within twenty-eight to thirty-day cycles with five to six days' duration.

STRASSMAN'S METROPLASTY FOR BICORNATE UTERUS

The vagina is adequately prepared by several applications of a germicide solution. After opening of the abdominal cavity, the peritoneum in front of the uterus is divided by a circular incision from one round ligament to the other to obtain a flap with which to peritonealize the suture-line later. An incision is now made on top of the fundus from side-to-side, starting about 1 cm. mesially on the tubal origin to the corresponding place on the other side. With a sharp scalpel all three coats of the uterus are divided, until the uterine cavity is reached. Bleeding from this incision is moderate and can be easily controlled by using suction with a small cannula-tip. With four Allis forceps applied (only two forceps are shown in B of the top diagram), the inner aspect of the uterine cavity is now exposed. With a straight instrument, the depth and width of the half-cavities are explored to gain an idea of the thickness and course of the dividing septum. Then, with long straight and heavy scissors or a scalpel the septum is cut away as close to the uterine wall as possible. Very little bleeding is encountered in this procedure. The septum may be quite thick and tough so that a sharp instrument is imperative. After the septum is removed, the cavity should be explored with the finger to ascertain that no remnants of the structure have been left. A uterine dressing forceps is now inserted downward through the cervical canal, and under guidance of the finger in the cul-de-sac, pushed through into the vagina. A one-half-inch iodoform gauze strip is then led through the cervix, the dressing forceps withdrawn, and the uterine cavity packed with as much of the iodoform gauze as it will conveniently hold. This will aid hemostasis and at the same time, prevent a growing together of the two wound edges which has previously been reported.

The suture line should run perpendicular to the line of incision, and to this end, the Allis clamps are inserted at the midpoints of the opening and pulled anteriorly and posteriorly respectively, in order to approximate the two halves. The uterus is to be closed in two or three layers, using No. 0 chromic catgut on a medium-sized needle. Particular care should be exercised in placing the sutures, lest an artificial internal adenomyosis be created. However, H. Kustner in a report of this operation, as well as Skutsh stressed the fact that the endometrium ought to be closely approximated to obtain a smooth scar. This technique is at variance with the closure after a Caesarean section, where a suture through the endometrium is carefully avoided. All sutures of one layer are left untied until the entire row is placed; then, they are tied and cut except the ones near the corner which serve to hold up the uterus. The final row takes in the serosal coat and the uppermost layer of the uterine muscle and, after all sutures are in place, the uterus assumes a shape which more or less can be compared with the shape of a "soldier's overseas cap." Finally, the peritoneal fold is drawn over the uterus as far back as possible and "tacked" on with interrupted fine catgut sutures to the top as well as the posterior aspect of the uterus, thus leaving only a small part of the suture line exposed. Louros proposed to add, in cases of retroflexion, a suspension operation of the Gilliam type which may enhance the value of the procedure.

The packing in the uterine cavity is removed on the fifth postoperative day at which time it is assumed that the wound edges are sufficiently epithelialized to prevent them from growing together. A hysterography is done about two months later to visualize the plastic effect. It shows that the unification has been successfully completed; the uterus is slightly rotated around its longitudinal axis. Both tubes have remained fully patent.

REFERENCES:

Malformations of the Uterus, Julius Jarco, M.D., American Journal of Surgery, Vol. 71, page 106.

Strassmann's Metroplasty in the Management of Bipartite Uterus Causing Sterility or Habitual Abortion, Werner Steiberg, M.D., Obstetrical and Gynecological Survey, Vol. 10, page 400.

Twenty years ago only 8 per cent of the world population was dominated by Communism. Today 37 per cent of the world population is dominated by Communism. At this rate, 20 years from now 66 per cent of the world population would be dominated by Communism.

Cardiac Arrest

GEORGE L. MILLER, JR.
West Point, Miss.

CARDIAC ARREST is not just a problem for the anesthetist. Every physician should know what to do in a case of cardiac arrest. The equipment—defibrillator, drugs, knife and blade, and equipment for artificial respiration and oxygen, should be present in all places where the possibility of cardiac arrest might occur. Incidence of this catastrophe has been variously reported as from one in 18 to one in 5000. The higher percentage occurred in patients having cardiac surgery, as might be expected. Cyclopropane and ether are the anesthetics associated with the highest occurrence of cardiac arrest; this is followed by pentothal-nitrous oxide, and nitrous oxide-oxygen-ether. Cardiac arrest can follow the administration of ANY type anesthetic. The highest incidence is in the first decade of life, however, this is probably due to the higher incidence of cardiac surgery in this age group. The recovery rate is lower also in this age group.

In cardiac arrest, one is generally said to have no longer than four minutes to get a supply of oxygenated blood to the brain and keep it going there. This means opening the chest, working the heart by hand, and forcing straight oxygen into the lungs. Often it also means, unfortunately, deciding that the heart has actually stopped, finding someone forthright enough to start cutting the chest wall, administering oxygen, and attending to several other particulars, culminating in an autopsy or, conceivably worse, a living patient who has to be fed, dressed, helped to walk, and conjectured about for some time afterward while everyone waits for cerebral function to return.

Of all the catastrophes that ensue upon cardiac arrest, the most regrettable one is hesitation. In most cases, about 85 per cent, the heart stops in the operating room. Yet there may be hesitation, in part from sheer incredulity and perhaps, for many, from unfamiliarity with a procedure that seems a little heroic.

Cessation of cardiac activity or fibrillation of the ventricles occurring in the operating room can usually be successfully treated without subsequent brain damage, IF a correct diagnosis is made and IF therapy is instituted at once. Success is less likely if such a catastrophe occurs outside the operating room, but an increasing number of dramatic restorations are being reported under these circumstances. It would seem worth while making the effort anywhere if the diagnosis is made promptly. So-called cardiac resuscitation, however, should not be attempted when success cannot be hoped for, *i.e.*, in terminal conditions, massive hemorrhage, and the like.

The anesthetist may witness cardiac arrect during induction of anesthesia, during operation, or in the immediate postoperative period. It is more previous paroxysmal cardiac arrythmias, in heart likely to occur in elderly patients, in those with block, in digitalis overdosage, following massive hemorrhage and during operations on the heart. A high index of suspicion, for whatever reason, makes it mandatory that the anesthetist start out with an electrocardiograph, an artificial pacemaker, large gauge intravenous needles and a full complement of drugs to which we shall presently refer. It cannot be stressed too often that successful resuscitation demands the instant and simultaneous application of a number of appropriate measures. To hesitate in applying these is to court disaster. A plan of approach to the problem must be made beforehand and implemented immediately when the occasion arises.

There are several common factors which may precipitate cardiac arrest: Inadequacy of Coronary arterial blood flow. There may be a *decreased supply* of blood to the myocardium or an *increased demand* for blood which the coronary arteries cannot meet. In the former instance, one can implicate hypotension from hemorrhage, spinal, epidural or local anesthesia, overdosage of preanesthetic medication or general anesthetics, traction reflexes, the onset of Stokes-Adams attacks, or raised airway pressure.

So far as increased demand is concerned, the injection of cardiac stimulants, as epinephrine, may cause such an increase in cardiac work and need for increased blood flow that the supply falls behind the demand and myocardial ischemia results.

The heart, itself, can be depressed to the point of cessation of activity, either through the effects of *reflexes* or by the action of *drugs*. Reflexes arising from the carotid sinus, from pulmonary vagal endings or from manipulations at the hilum of the lung are examples of the first mechanism. Digitalis, quinidine, procaine amide, narcotics, and general anesthetic drugs can be included in the second category.

---

*Presented before the Northeast Mississippi Medical Society, June, 1959, Tupelo, Miss.

OXYGEN LACK, whatever the cause, is a potent factor in the development of cardiac arrest. Respiratory obstruction or depression is a common precipitating event.

Miscellaneous causes include ELECTROCUTION, HYPOTHERMIA, PULMONARY or CEREBRAL EMBOLUS, or MANIPULATION of the heart during operation. This list is not complete but is illustrative.

The following signs are suggestive of cardiac arrest:

1. Absence of radial and carotid pulses
2. Inaudible heart sounds
3. Sudden pallor or cyanosis
4. Sudden pupillary dilation
5. Respiratory standstill or apneustic gasps
6. Absence of bleeding and dark blood in the operative field.
7. Electrocardiographic evidence of asystole

Most of these signs are unreliable. They may be present because of severe hypotension as well as of cardiac arrest. We therefore recommend the following course of action if one is uncertain of the diagnosis. Unless one can see the heart, or can palpate the abdominal aorta (through an incision already made), *the only positive way of diagnosing cardiac arrest is by opening the left chest.* In the rare instance in which thoracotomy is performed and the heart is found to be beating feebly, little harm is done providing oxygenation of the lungs can be carried out.

The instant cardiac arrest is suspected and as preparations are made to open the chest, one can pound on the precordium with one's fist or needle the heart through the chest wall by electrodyne. Both of these maneuvers can be done quickly and are suggested because of the presence of a greater degree of cardiac irritability in the early phases of arrest. While these are attempted, artificial respiration with oxygen must be begun via a face mask—intubation of the trachea can wait.

The incision should be made in the fourth or fifth left intercostal space. It should not extend to the sternum lest the internal mammary artery be cut; nor, in one's haste, should one incise the lung. The pericardium need not be opened at the start. With the hand alone one can discern whether the heart is in complete standstill or is fibrillating (when it feels like a bag of worms). It may be that, if the heart was originally in standstill, it will resume rhythmic contractions in response to manual compression alone. The heart is cradled in the operator's hand, and the ventricles compressed between thumb and fingers of one hand or fingers of two hands. Manual compression of the heart can serve as an effective means of moving blood to the cerebral and coronary arteries. In response to each compression a pulse should become palpable in the carotid artery. If this is not felt, compression is not adequate. Pupillary constriction replacing dilatation is a good sign of cerebral circulation. Cardiac compression should be applied at the rate of 40 to 50 per minute in order to ensure sufficient movement of blood. This is about as fast as one can go without cramping the hand.

There must be sufficient fluid available for cardiac output during intermittent manual systole. Blood may be pooled in the periphery when the heart stops. It is necessary, therefore, to provide fluids intravenously or intraarterially. The rate of injection must be rapid if the cardiac chambers are to fill between compressions. This may involve cutting down on a vein and inserting a large-bore needle or cannula. Any type of parenteral fluid can be used in this emergency—volume is the essential item. Once the heart begins to fill satisfactorily, beware of overloading the circulation.

Before drugs are used, the cardiac muscle should be made as pink as possible through manual systole and pulmonary ventilation with oxygen. This is vital, for the injection of chemicals into a hypoxic heart may produce myocardial irritability sufficient to cause ventricular fibrillation. The primary value of drugs lies in increasing the force and/or rate of cardiac contraction, once the heart has begun to beat spontaneously. To increase force, epinephrine, in doses of 1 or 2 ml. of 1:10,000 solution, is most potent, but may be followed by ventricular fibrillation. A more controllable stimulant is isoproterenol (isuprel) in doses of 0.1 to 0.2 mgm. A third drug is calcium chloride, 5 to 10 ml. of a 10 per cent solution. These compounds are injected into the left ventricle and moved through the coronary arterial system via manual compression of the heart.

If the cardiac rate is slow after spontaneous activity has resumed, atropine sulfate in doses of 0.4 mgm. intravenously may release vagal tone and cause a more satisfactory rate of contraction.

While manual systole is being carried on, and electrocardiogram should be taken since the electrical complexes of the heart can be a useful guide to drug therapy. If the electrocardiogram is that of the so-called "dying heart," *i.e.,* showing a "disorganized" appearance with widened and slurred QRS complexes, molar sodium lactate solution administered intravenously may prove helpful. One hundred ml. of this solution may be required; the risk of providing an excessive sodium ion level seems acceptable in light of our present knowledge.

The anesthetist is usually the first to suspect cardiac arrest. If convinced of the diagnosis, he should insist that the chest be opened. He should oxygenate the blood during the crisis and counteract pneumothorax. Immediate intubation of the trachea is unnecessary and may cause delay in oxygenation if there are difficulties in introducing the tube. The anesthetist should palpate a peripheral artery, usually the carotid, or ask someone else to do it, to test adequacy of manual compression. He directs the rate of infusion of fluids to ensure adequate filling of the heart.

VENTRICULAR FIBRILLATION: If the ventricles are fibrillating the first measure to take is to oxygenate the myocardium by manual systole. With oxygen supplied to the lungs and circulation through the coronary arterial system established through compression of the heart, the myocardium should lose its duskiness and become pink. There seems to be a differing opinion concerning the best method of defibrillation among anesthesiologists with whom I have discussed this phase of cardiac arrest. Those with considerable experience have found that electrical defibrillators "cook" the heart to such an extent that treatment for the resulting asystole is impossible.

ELECTRICAL DEFIBRILLATION: Shocks of 160 to 180 volts and 0.1 to 0.2 seconds duration are applied through disc electrodes. The larger the mass of the heart, the greater the voltage required. Defibrillation of a badly diseased heart is difficult to accomplish. Fortunately, mere passage of an electrical current through the patient's body will not explode a potentially explosive mixture of anesthetic gases.

To avoid electrocution, surgeon and anesthetist must avoid contact with the patient as the shocks are applied. If an electrical defibrillator is not available, a simple electric defribrillator can be put together on the spot. If there is nothing better, a lamp cord hitched to a pair of metal retractors will do. Swift plugging and un-plugging of this emergency contraption into the conventional 110-volt, 60-cycle AC socket always shocks the ventricle and sometimes induces standstill or immediate resumption of natural systole. Defibrillation is usually followed by asystole, the treatment for which has just been outlined.

CHEMICAL DEFIBRILLATION: Asystole can be produced by injection of 6 to 8 mEq. potassium chloride into the root of the aorta. The aorta should be briefly compressed distally and the drug carried through the coronary arterial system by manual systole. An atrial injection of procaine will sometimes reduce cardiac irritation sufficiently to bring it to standstill and end the useless rippling of the fibers. Rhythmic systoles may then return spontaneously, or normal action may have to be induced by sustained massage or perhaps by further procaine injection (if fibrillation recurs).

If the heart resumes beating with sufficient force to provide an adequate blood pressure, and if the electrical complex is reasonably normal, no further steps need be taken. However, successful defibrillation may be followed by a spontaneous reversion to ventricular fibrillation. If the heart-rate is very slow, *e.g.*, 20 per minute or less, and the ventricular electrical complexes are wide and slurred, molar sodium lactate solution given intravenously may be of value. The effect of molar sodium lactate intravenously upon the EKG of a patient with ventricular fibrillation.

6:36 Wide and slurred ventricular responses, one minute after start of molar sodium lactate together with manual systole.
6:37 Spontaneous cardiac action.
6:39 Norepinephrine added intravenously.
6:40 and 6:47 Continued improvement of ventricular complexes.

PROGNOSIS: Damage to the central nervous system from ischemia is the most important determining factor in the prognosis when restoration of cardiac action has been accomplished. If periods of anoxia have preceded the complete cessation of cerebral blood flow associated with cardiac arrest, the brain's ability to survive the latter insult may be reduced below the four-minute figure generally accepted. There are few measures known that can prolong this survival time, that is, the four minutes of total ischemia. Hypothermia can be protective. Perhaps general anesthesia, by reducing cellular metabolism, may afford slight protection.

Signs which predict recovery include prompt reversal of pupillary dilatation and reaction to light, return of spontaneous respiration, cessation of decerebrate movements, and rapid return of consciousness and orientation. Under these circumstances complete recovery can be practically guaranteed. With central nervous system damage there is evidence of irritability and cell destruction, such as convulsions, fever and persistent coma. Further anoxia from repeated convulsions should be prevented with barbiturates and dilantin. The prognosis here must be guarded. The longer these conditions persist the more hopeless the outlook. Serial electroencephalograms can provide a quantitative means of the degree of damage and improvement.

INTERPRETING MEDICAL LITERATURE

STAFF OF REVIEW

JOSEPH P. MELVIN, Jr., M.D. .... **Cardiology**
Harvey F. Garrison, Jr., M.D. .... **Pediatrics**
JAMES D. HARDY, M.D., and STAFF, Department of Surgery,
University Medical Center

CARDIOLOGY

SEVERE AORTIC STENOSIS IN ADULTS: EVALUATION BY CLINICAL AND PHYSIOLOGIC CRITERIA, AND RESULTS OF SURGICAL TREATMENT — by Walter H. Ablemann, M.D. and Lawrence B. Ellis, M.D. Harvard Medical School, Boston, Massachusetts.

These authors review six years' experience with aortic stenosis in adults, the most important fact derived from these studies being the low incidence of accurate diagnosis presurgically or antemortem. At least fifty per cent of the cases were missed on clinical examination and the socalled usual typical findings of the rough murmur over the aortic area, the systolic thrill, the absent aortic second sound, etc., even when present, do not always indicate significant valvular stenosis. When auscultation suggests aortic stenosis and left ventricular enlargement and calcification in the region of the aortic valve is present, usually significant stenosis exists, but, at times, mild or even insignificant aortic stenosis in combination with severe coronary or myocardial disease may mimic severe aortic stenosis Conversely, serve aortic stenosis may be occult and present at heart failure of unknown etiology with almost inaudible or, in some cases, completely absent, murmur over the aortic area. There was a very definite group of patients who had clinical findings suggesting definite severe aortic stenosis who, on cardiac catheterization, were found to have insignificant obstruction at the aortic valve area. Left ventricular catheterization seems to be the only definite way of separating significant from insignificant stenosis, as the clinical picture of the two groups was very similar and did not permit reliable differentiation.

Patients with aortic stenosis who become symptomatic with angina, dyspnea or syncope, have a very bad medical prognosis. Although the operative management of the disease is still far from perfect, it still offers more than does continued medical management at this stage of the disease. The operative mortality will average 15-20 per cent with about 75 per cent of those surviving being improved within six months to four years after the operation. The patients who have been in heart failure prior to surgery suffered a very high operative mortality and few improved. It is important to get to these patients as soon as angina, dyspnea or syncope present, and not to wait until congestive heart failure appears.

Comment: A high index of clinical suspicion is warranted if we are to increase our clinical diagnostic "batting average" in this condition. Left ventricular catheterization will always be necessary to assess the severity of aortic stenosis, and an open mind should always be kept concerning such a diagnosis in any type of cardiac enlargement and/or congestive failure not explained by the usual etiology.

SURGERY

THE MANAGEMENT OF MASSIVE HEMORRHAGE FROM DIVERTICULAR DISEASE OF THE COLON — Charles M. Earley, Jr., *Surgery, Gynecology and Obstetrics,* 108: 49, 1959.

This article is most helpful in view of the uncertainty which surrounds the course to be anticipated from bleeding diverticular disease. Since no individual surgeon sees a large number of these cases, one is always in doubt regarding whether operative or conservative management is most likely to result in the salvage of the given patient. On the one hand are those physicians who claim that patients virtually never exsanguinate from bleeding diverticula if adequate blood transfusion is given. On the other hand are those who feel quite strongly that, once transfusions have been given a reasonable trial, the portion of the colon involved by the diverticula should be resected. Most surgeons take a middle ground between these two points of view.

The present author has reviewed 23 cases treated at the hospitals of the Medical College of Virginia. Of these, five had been admitted with more than one episode of hemorrhage. Only one patient treated conservatively died, this individual having had a pulmonary embolus. Surgery was used in seven patients, with two deaths. To be sure, surgery was employed in patients who had not responded satisfactorily to vigorous transfusional therapy. The patients most likely to succumb to hemorrhage are the very elderly individuals who are most prone to a fatal outcome from most types of hemorrhage.

It is pointed out that the following criteria strongly suggest bleeding from diverticular disease: (1) passage by rectum of bright or dark red blood; (2) sigmoidoscopy, barium enema, and air contrast studies showing diverticular disease with other potentially bleeding lesions being excluded; (3) stomach and small intestine normal to x-ray visualization; (4) normal blood coagulability. It would appear that about five per cent or somewhat more of the patients with diverticulosis exhibit massive bleeding from diverticulitis.

The article again reminds us of the frequency with which colonic bleeding in patients with diverticulosis is not due to bleeding from a diverticulum. In one case operated upon the author found an ulcerated lesion which was thought to be a stercoral ulcer. In another patient no site of bleeding could be found in the excised colon specimen by the pathologists. In still another patient the authors actually visualized a point of bleeding in the ascending colon which was thought to be an eroded early carcinoma, but study of the excised specimen revealed that the bleeding was on the basis of diverticulitis.

Another very common situation that the authors emphasize—and which the reviewer himself has noted on two occasions—is that of having the patient bleed again massively following what was thought to be an adequate resection of colon involved with diverticula. This situation is particularly distressing in that the patient has just undergone an extensive procedure for resection of colon and is usually in poor condition to withstand another operation.

Conclusion and Comment: The author concludes that massive hemorrhage may occur from diverticula of the colon and with this the reviewer would agree. He further concludes that other possible causes for bleeding "must be ruled out effectively." This is sound advice but, unfortunately, it is usually not possible completely to exclude other causes of bleeding. Furthermore, it is uncommon that one can actually demonstrate that the bleeding is coming from any specific diverticulum. The author states that conservative management is adequate for most cases, and this statement is certainly concurred in by the reviewer. Since one may be confronted by the disconcerting problem of having the patient bleed again following colon resection, it is usually better to treat the patient with diverticulosis conservatively unless some definite lesion other than diverticulosis can be demonstrated, which not infrequently will be the case eventually. Theoretically one might use the sterile proctoscope at operation and thus identify the bleeding point, but the colon is usually filled with blood and the demonstration of any specific bleeding point can be quite difficult under such circumstances. The author concludes that at operation all the colon containing diverticula should be resected unless the actual bleeding point can be identified. While this would appear to be a good recommendation, such extensive colon surgery in a patient who has bled massively over a period of many hours may at times constitute poor judgment. Again, the case must be individualized. Finally, the author states that "in a bleeding patient too critically ill to tolerate resection or colectomy, proximal ileostomy or colostomy may be helpful although there is no certainty that the bleeding will stop following this procedure." This reviewer would very likely perform some type of colon resection if the abdomen had already been opened. Some have recommended a transverse colostomy in the management of colonic hemorrhage when no bleeding site can be identified at operation. Additional surgery would be planned according to whether further bleeding was from the proximal or the distal colon.

Once again, however, conservative management is usually to be preferred unless a fairly definite lesion in the colon can be identified. If this study has emphasized nothing else, it has again reminded us that the patient with diverticulosis frequently is bleeding from some lesion other than that due to diverticulitis.

Giant Ulcers of the Stomach—Cohn, Isidore, Jr., Sartin, Jack, and Sudduth, Perry G., Am. J. *Gastroenterology,* 31: 121, 1959.

Many physicians commonly think of giant ulcrs of the stomach as reflecting a malignant process. The present article reveals that such ulcers are more often benign.

The authors reviewed all gastric ulcers seen at Charity Hospital in New Orleans from June, 1952 to August, 1958, provided there was a pathologic report stating that the diameter of the ulcer was 2.5 centimeters or more. No other criteria were utilized in selecting cases for study. After a review of all charts with a diagnosis of gastric ulcer, carcinoma, sarcoma, or other miscellaneous gastric lesions, 48 acceptable cases were found. Of these, 40 represented benign ulcers.

The age distribution of the patients involved was as expected for chronic ulcer disease, with the greatest incidence in the decade between 50 and 59. Large or giant ulcers were found in both the young and the old with a predominance in males, which would be expected according to the usual incidence of ulcer disease. The size of the ulcer and the reaction surrounding it suggested a chronicity of the disease which was borne out by the duration of ulcer symptoms. Over half the patients had had symptoms for one year or longer, and almost one-third had had symptoms for over five years. Ten patients reported symptoms that had persisted for from ten to thirty-four years. These symptoms were not significantly different from those of patients in general with peptic ulcers.

It was not easy to arrive at a correct diagnosis preoperatively. The radiologic error most frequently made was the incorrect diagnosis of a benign lesion as a malignant one. The radiologists had an over-all accuracy of 30 per cent in differentiating benign from malignant lesions. Gastroscopy was undertaken in five patients but a correct diagnosis was made only once.

In their review of the literature, the present authors collected 553 gastric ulcers over 2.5 centimeters in diameter, 72 per cent of which were benign. Among the 136 collected cases over 4.0 centimeters in diameter, only 37.5 per cent were malignant, which compares closely with the 33 per cent incidence of malignancy in the cases of this same size for the present series.

Large gastric ulcers that are malignant have no characteristic clinical picture which will distinguish them from non-malignant disease. The difficulties in arriving at a correct diagnosis by clinical, x-ray, gastroscopic, and operative studies including gastrotomy for direct visualization of the ulcer emphasized the importance of making a correct diagnosis on the basis of histologic (microscopic) study only. Perforation, massive bleeding, and pyloric obstruction occur with giant gastric ulcers just as with other gastric ulcers. The authors point out that large gastric ulcers do not respond readily to medical management and usually require surgery for definitive relief.

COMMENT: The figures speak for themselves. It is clear that *the majority of large gastric ulcers are benign.* Nevertheless, since it is impossible to determine radiologically those which are malignant from those which are benign—and since these large ulcers did not usually respond satisfactorily to conservative management—prompt surgical intervention is indicated for the management of large gastric ulcers as soon as they are demonstrated to be present.

WHAT'S HAPPENING TO OUR MEDICAL SCHOOL APPLICANTS?

The total number of medical school applicants seems to be decreasing in the face of increasing enrolments and increasing graduates from colleges:

Year	Total Students Enrolled in Colleges	Total No. Graduating	Total No. Med.-School Applicants	No. Medical-School Applicants Represented as Percentage of College Graduates
1950	2,296,592	433,734	22,279	5.1
1957	3,068,417	340,347	15,791	4.6
1958	3,258,556	365,748	15,172	4.1

The percentage of students entering medical schools with an average grade of A has been decreasing:

First-Year Medical Students College-Grade Average	(Per Cent) 1950-51	(Per Cent) 1957-58
3.6-4.0 (A)	40	18
2.6-3.5 (B)	43	66
1.0-2.5 (C)	17	16

There are also some disturbing trends in the MCAT scores as reported by the research division in the applicant study appearing in the April issue of the *Journal of Medical Education*, ". . . scores of all first-time applicants for each of the years 1952-57, clearly show that a decline in quantitative aptitude and scientific skills as measured by MCAT has occurred, accompanied by a rise in verbal aptitude." However, preliminary studies of the 1958-59 freshman class showed significant increases in both quantitative and science scores, and the average scores for applicants to the 1959-60 class are showing similar trends.

The number of students withdrawing, both in poor and in good standing, increased steadily since 1954:

Year	Poor Standing No.	Poor Standing Per Cent	Good Standing No.	Good Standing Per Cent
1954-55	257	3.4	161	2.1
1955-56	324	4.2	156	2.0
1956-57	368	4.6	176	2.2
1957-58	448	5.6	181	2.3

Medical Center Miscellany

The Second Annual Cancer Seminar will be held at the University Medical Center in Jackson Thursday, Dec. 3. Guest instructors for the one-day postgraduate course are to be Dr. James D. Rives of New Orleans and Dr. William O. Russell of Houston, Texas.

Each guest lecturer will present two papers. Dr. Rives will talk on the "Diagnosis and Management of Cancer of the Colon," at 10:00 a.m. and on "Management of Cancer in Aged Patients," at 1:30 p.m. He is a professor of surgery and chairman of the department at Louisiana State University School of Medicine.

Dr. Russell is pathologist-in-chief at M.D. Anderson Hospital in Houston. His 10:30 a.m. talk will cover "Pathologic Diagnosis of Cancer of the Head and Neck." At 3:15 p.m., he will speak on "Clinicopathologic Studies of Thyroid Carcinoma."

Dr. J. Harvey Johnston of Jackson will moderate at 11:15 a.m. panel discussion on "Chemotherapy in Cancer," with Dr. Rives, Dr. Russell and Dr. Warren Bell as participants. Dr. Johnston is a clinical assistant of medicine and Dr. Bell is professor of clinical laboratory sciences and chairman of the department. He also heads the chemotherapy program in the Department of Medicine.

The afternoon lecture will be separated by a tumor clinic demonstration moderated by Dr. George Archer of Greenville. Participants will be Dr. Curtis Artz, associate professor of surgery at the Medical Center; Dr. William Hare, professor of pathology; Dr. Elmer Harris, clinical instructor in radiology; Dr. Clarence Sutherland, clinical assistant professor of obstetrics-gynecology, and Dr. James G. Thompson, clinical associate professor of medicine.

The Mississippi Division, American Cancer Society, is cooperating with the medical school in offering this seminar. Dr. David Pankratz, newly inducted as president of the state cancer society, will welcome the registrants as the session opens. Dr. Pankratz is dean of the medical school and director of University Medical Center.

Presiding officers for the day are to be Dr. Watts R. Webb, UMC Associate Professor of Surgery, and Dr. T. E. Ross of Hattiesburg, chairman of the professional education committee of the Mississippi Division, American Cancer Society.

A film on psychological aspects of cancer will be offered for the benefit of early-comers. Registration is set for 8:30 a.m. in the medical school foyer. There is no tuition fee. Attendance at the course will be expected for six hours of Category 1 credit toward the postgraduate requirements of the American Academy of General Practice.

Department of Medicine

Two new faculty members have been named to the Department of Medicine. They are Dr. Ben B. Johnson, assistant professor, and Dr. Myra Tyler, instructor.

Dr. Johnson will serve as chief of the division of renal diseases. Before coming to the Medical Center he was an assistant professor of medicine at Stanford University where he was chief of the diabetes clinic in the university hospitals and director of the graduate training program in diabetes and other metabolic diseases.

Dr. Johnson is a graduate of both Harvard College and Harvard Medical School. He is a diplomate of the American Board of Internal Medicine and took his specialty training at New York Hospital, Cornell University and Bellevue. He went to Stanford as a research fellow, moving up to instructor in medicine in 1955 and to assistant professor the following year.

Dr. Johnson will continue his research into renal diseases, adrenal cortical function and diabetes at the Medical Center.

Dr. Tyler graduated from the University of Minnesota and got her M.D. degree from Yale. She interned at Bellevue City Hospital, New York, and received her residency training at Cushing General Hospital, Framingham, Mass., Boston Veterans Administration Hospital and Westhaven, Conn. She was a senior physician at Gaylord Hospital and Sanatorium, Wallingford, Conn., for three years before joining the UMC full time staff in October.

THE MISSISSIPPI DOCTOR

The journal with a vision which encourages a plan of delivering modern medicine to the masses at less cost to the individual and more profit to the practitioner. It champions the community hospital, the hub around which this service must be built.

Entered as second-class matter, January 19, 1926, at the post office at Booneville, Miss., under the Act of March 3, 1870. Annual subscription, $3.00.

W. H. ANDERSON, M.D. .... Editor-in-Chief
MILDRED P. ANDERSON .... Assistant Editor

MID-SOUTH POSTGRADUATE MEDICAL ASSEMBLY

W. G. Stephenson, M.D. .... President
Chattanooga, Tenn.
Omar Simmons, M.D. .... President-elect
Newton, Miss.
David E. Stewart, M.D. .... Vice-President
Brownsville, Tenn.
L. B. Otken, M.D. .... Vice-President
Greenwood, Miss.
C. G. Swingle, M.D. .... Vice-President
Marked Tree, Ark.
Thurman Crawford, M.D. .... Secretary-Treasurer
Memphis, Tenn.

Mid-South Associate Editors
H. King Wade, M.D. .... Hot Springs, Ark.
Frank M. Acree, M.D. .... Greenville, Miss.
R. L. Sanders, M.D. .... Memphis, Tenn.

MISSISSIPPI STATE MEDICAL ASSOCIATION

Stanley A. Hill, M.D. .... Corinth
President
G. Swink Hicks, M.D. .... Natchez
President-elect
Wm. E. Lotterhos, M.D. .... Jackson
Secretary
Rowland B. Kennedy .... Jackson
Executive Secretary
Wm. M. Dabney, M.D. .... Crystal Springs
Louis F. Rittelmeyer, M.D. .... Jackson
State Associate Editors

The Publication Committee is not responsible for the authenticity of opinion or statements made by authors or in communications submitted to this journal for publication. The author or communicant shall be held entirely responsible.

Address all material for publication to W. H. Anderson, M.D., 30 West Church Street, Booneville, Mississippi.

OF WHICH ALL CAN BE JUSTLY PROUD

Comes the announcement from Washington that more and larger medical schools must be established in order to meet the shortage of doctors anticipated before 1975, due to our explosive increase in population. We trust that this shortage is over-estimated, but maybe it is not. We can rejoice that our state got our medical center under way when it did.

This University Medical Center is now our pride and joy. On its faculty may be found some of the ablest men in the medical profession of this nation. The dean, Dr. D. S. Pankratz, ranks among the most able of medical deans. He is broadly educated, diplomatic, wise, a Christian gentleman steadfast in medical integrity.

We take comfort in the aid this medical journal could give in getting the school established. And it has counted it a privilege to stand by ever since.

Special acknowledgement for support should go to our legislators and the past three governors—Wright, White, and Coleman—for their consistently fine friendship for the University Medical School. The Board of Trustees of Institutions of Higher Learning has been constant in its support of this great institution.

Located in a rapidly growing and beautiful city, the University Medical Center rests on a choice plot of ground, a beacon of progress, a symbol of the high health standards of a great state and a strong people.

TUITION FEES GOING UP

Since 1939 the average annual tuition fee for medical schools in the United States has increased 114 per cent. Thirty-two per cent of the increase occurred between the years 1950 and 1956. During this same six-year period, the average family income increased 30 per cent, and the cost-of-living index increased by 16.9 per cent.

Early reports from a few medical schools indicate that some schools will raise tuition fees again this year.

ONE MORE ISSUE

Five years ago the editor and publisher of the *Mississippi Doctor* agreed to *give* the journal to the Mississippi State Medical Association as of January 1, 1960. This transfer was due to several influences:

First, the *Mississippi Doctor* is the last surviving state medical journal privately owned, the few others remaining having merged or become state owned during the past decade.

Second, the forces of centralization have attained overpowering strength. The *Mississippi Doctor*, in effect, was the last citadel of independent thought and operation within the state organization.

Third, a state journal advertising bureau was established by the AMA primarily to help subsidize struggling state medical journals. This bureau, now an independent functioning agency, welcomes the acquisition of this journal. The advertising field has grown into a spectacularly lucrative business.

Fourth, in addition to being an additional source of income to the state association, the journal can be enlarged. Another advantage seems to be that the new state medical journal can be printed out of the state. A plant in Missouri has received the contract.

The *Mississippi Doctor* ceases publication with the December issue, which is Volume 37, No. 7. Founded by Dr. V. B. Philpot as a local organ in 1922, it soon became the property of the Northeast Mississippi Medical Society, which owned it until 1937. The journal became the official organ of the Mid-South Postgraduate Medical Assembly in 1934, of the Mississippi State Medical Association in 1936. Although it was now privately owned, it remained a free organ. No author was refused expression. The editorial policy was consistently to boost, to build, to serve, and to discourage controversy.

Across the years the journal has become indebted to many friends, many of whom have passed on. The memory of men such as these of our state association we hold sacred: Joe Green of Laurel, J. Rice Williams of Houston, Percy Wall, Felix J. Underwood of Jackson, G. S. Bryan of Amory, T. M. Dye of Clarksdale, Hugh Gamble of Greenville, Henry Boswell of Sanatorium, W. W. Crawford of Hattiesburg, and W. A. Evans of Aberdeen. These were friends to a state medical journal that ranked among the best when only private enterprise was able to provide it.

The friendship of these and many others undergirded us with encouragement: Rudolph Matas of New Orleans, W. A. Evans of Aberdeen and citizen of the world, Seale Harris of Birmingham, Arthur McCormack of Louisville, Ky., Quitman Ewell of St. Louis, Ed Carey of Dallas, E. M. Holder, J. A. Crisler, and Milton Adams of Memphis.

IT WAS A GIFT

The arrogant statement, "We have bought and paid for the *Mississippi Doctor*" as made by the chairman of the Publications Committee was not only self-deceit; it was ruthless.

The *Mississippi Doctor* was a *gift* to the Mississippi State Medical Association. It is true that the transfer was legalized by the attachment of a check for $1.00, but the service this journal has endeavored to render across thirty-seven years is too precious and personal to be sold. No doctor in the state has enough money to *buy* it, nor has the state association.

(*The following was written by* Dr. Fount Richardson, *Fayetteville, Arkansas, president of the American Academy of General Practice, and former editor of the Journal of the Arkansas Medical Society. We requested a guest editorial. This came. In publishing this sentiment and that from another esteemed friend,* Dr. Marshall, *the editor feels that he is consenting to his own requiem.* Nevertheless, for such letters we shall be forever grateful, and continue to strive to be worthy.—*Ed.*

A SALUTE

The end of an era always brings with it thoughts that are sad, thoughts pleasant with the sense of achievement. The loss of Dr. W. H. Anderson as editor of the *Mississippi Doctor* after his many years of faithful and untiring service to Mississippi medicine merges our thoughts into a salaam.

Perhaps more fitting it would have been to name Mrs. Anderson as co-editor. It was she who performed the routine of correcting, editing, and all else that goes into getting a publication ready for the press. Hers was an invaluable assistance.

There was a time in the existence of the *Mississippi Doctor* when its continuation was in doubt. This was during a trying period of our entire country, when many established institutions were closing their doors or making drastic changes. In this depression Dr. Anderson agreed to assume all reponsibility for publishing the journal. Finances were a serious problem. Advertising was to be obtained only through persistent effort. There was little comparison to the vast amounts of money spent then and now for advertising. The journal struggled for years. Other state journals looked to their medical association for subsidy, formed mergers, or gave up.

The period of the war years was another struggle. Scientific papers were scarce, paper and labor were major problems. The *Doctor* survived.

Following the war came a tumult of change,—a rash of new drugs, and a vast program of hospital construction. It was not happenstance that the first of the Hill-Burton hospitals was built in Mississippi, promoted by the *Mississippi Doctor* and its editor.

The journal served loyally the Mid-South Postgraduate Medical Assembly as well as the Mississippi Association, for which it was also official organ, and, singularly, the editor had been president of both organizations. He served as councilor of his beloved Southern Medical Association and an officer in the Section of General Practice which he helped to organize. His time and his efforts have consistently been for the best interests of organized medicine, in addition to an arduous private practice.

As publication of the *Mississippi Doctor* is taken over by a state-managed organ, its editor can look back on many years of accomplishment. Not all of his dreams and plans were realized, but most of his endeavors were generously successful, and he can view in retrospect such achievements as the plan for providing hospital care for the indigent sick in which plan Mississippi pioneered, the splendid four-year medical school, a system of modern hospitals unsurpassed by any other state in the nation, a new nursing program for training bedside nurses, and other noteworthy health projects of which he was a part.

Like many a physician, Dr. Anderson's retirement from the publication of his journal does not mean that he is retiring from medicine. That, in an area where he is almost revered, and friends of many years call on him, is impossible. He will be doing his part in medical care, unless he becomes incapacitated, for years to come. He has served organized medicine, his community, his state, and his patients. What doctor has done more? Few have done as well.

This is my salute to a Family Doctor who in my humble estimate fulfills the role in its fullest meaning, and to its highest implications.

Dear Friends:

It was with heavy feelings that I read in the current issue of the *AMA Journal* that the *Mississippi Doctor* is not to continue as the official organ of your state society. Certainly, this is most regrettable, and I am most certain countless medical confréres feel likewise.

You have served the members of your state society for so many years in such a loyal and kindly manner, that your publication will be missed greatly, not alone in your own state, but throughout the land.

How well I realize the amazing amount of time and effort you and Mrs. Anderson have invested in keeping the publication going. Such honest devotion can not go unrecognized by the Great Power who governs all. I only regret that there are not many more editors and publishers like you. This world would be a much happier place in which to live.

My Louise joins me in fervent good wishes.

Sincerely yours,
Wallace Marshall, M.D.
Watertown, Wis.

The Mid-South Postgraduate Medical Assembly will hold its annual session in February at the Peabody Hotel in Memphis. Dr. William G. Stephenson of Chattanooga is the distinguished president. He has set the pace in recent years for postgraduate assemblies in the South, with the know-how of putting on a good program and getting a fine attendance. We are fortunate to have him as president of our beloved Assembly.

We quote the following from him with grateful acknowledgement: "I am sorry that the December issue will be the last for the *Mississippi Doctor*. I have always enjoyed reading this journal. It has rendered a great service to the Mid-South Postgraduate Medical Assembly in publishing its papers each year.

"In 1930 Dr. Norris C. Knight interned with me at the Baroness Erlanger Hospital. He received the *Mississippi Doctor* at that time and I enjoyed reading it so much that I became a subscriber. One of the reasons I enjoyed it so much was being able to read the papers presented at the Mid-South Postgraduate Medical Assembly."

DAT OLE DEBIL MONOPOLY

If any really thoughtful person compares the enormous volume of losses practically certain to result from the steel strike with the trivial sum of any potential gains which may arise therefrom, is he not likely to question the soundness of a legal system which permits such a situation to arise? Is not something wrong with an arrangement which allows a few men sitting around a table to touch off a conflict so damaging to millions of their fellow Americans? To this question, the obvious answer seems to be "yes." But just what is the nature of the flaw in our national set up?

Careful consideration seems to lead to only one possible conclusion: Namely, that we have allowed to grow up in our land—a nation supposedly devoted to freedom—a bevy of powerful monopolies which we permit to subordinate the interests of the public to their desires for gain. If we had kept intact individual liberty and freedom of competition—which our forefathers so carefully embodied in our nation's anatomy—it would have been impossible to have a little group of men sitting in a New York hotel settle the fate of the steel industry for months to come.

The steel strike demonstrates the overwhelming power of labor union monopoly with its $612,000,000 of annual income of which former Congressman Ralph Gwinn estimates $100,000,000 are used directly and indirectly for political purposes.

ONE POSSIBLE SOLUTION

The remarkable experience of the Lincoln Electric Company gives a hint of what might be accomplished if employees everywhere, instead of organizing to battle their employers, strove to help them to maximize output. There, wholehearted cooperation of workers with management has made it possible for the average Lincoln Electric employee to receive annually nearly double the pay coming to the workers employed by giant competitors operating in the same field!

A WORD TO THE WISE

FROM Dr. Mike Caldwell, state AMEF chairman:

The annual "winter campaign" of the AMEF in Mississippi began November 1, 1959. During the campaign every physician in Mississippi will be contacted in some manner to acquaint him with the facts relating to AMEF.

During 1958, Mississippi physicians averaged about $2.00 in contributions to AMEF. Help your fellow physicians increase Mississippi's share in 1959. Remember, every dollar that you send goes to the school of your choice.

Send your check now to AMEF, 535 North Dearborn, Chicago 10, Illinois, or to our own state office.

Quoted

The cheap automobile is no more. The cheap suit of clothes and the cheap trip to the grocery are but dreams of a bygone day.

Whether we like it or not, the harsh fact of life is that we make more but it takes more.

Caught supremely tight in this vise of income-outgo are our medical schools in which we are interested to the hilt and will remain so the rest of our lives.

In the past, you and I were educated to a considerable extent by the vast bequests of the philanthropists. They are no longer with us. They have been taxed out of existence. With their passing, and with increasing overhead, the deficit for operational expenses of our medical schools gradually mounted until it reached several million dollars a year.

At that point, it became clear that a new source of income was necessary. Since the schools could not be spared, this new income must obviously come either from government or from voluntary contributions. And so the American Medical Educational Foundation was born.

As doctors, nationwide we are committed to the premise that the best medicine is that which is most free of government encumbrance. In support of that premise we are the only organized group which has continuously and effectively fought for its rights. We are respected because of it.

Also, in support of medicine, industry has contributed mightily. The industrial giant has realized that medicine is a cornerstone in the bulwark to maintain free enterprise. To back that realization have been very large grants to our medical schools.

But we doctors must also contribute. If we believe in our right to shape our own destiny we should be prepared to back our beliefs with dollars.

In this area at least, no professional group has had so much contribution expected of it as has the medical profession. Furthermore, no group has responded as well. What we have done for others we must now do for ourselves.

So give and give till it hurts. Give each year to the AMEF or to your medical school. You will never speak louder for yourself.—Bulletin of Green County Medical Society, Springfield, Mo.

MAY CLAIM TOP PRIORITY IN 1960

The Forand Bill—which was first introduced in 1957—is being considered by the 86th Congress. This legislation would provide certain hospital, surgical, nursing home and dental benefits to persons receiving Social Security retirement and survivorship payments. The same idea, with numerous variations in benefits and eligibility, will be appearing in many other bills and amendments.

The real issue is not the specific provisions of the Forand Bill, but rather the basic principle involved.

It would alter the nature of the Social Security program. It would pave the way for evolution of a system of tax-paid health care for the entire population. Every two years—in the even years of federal elections—the push for amendment and expansion would be under way. The continuing trend would first undermine, and eventually destroy, our system of voluntary health insurance and the private practice of medicine.

Because of its political appeal, this issue may very well assume "top priority" status in the presidential election year of 1960

HEALING TEAM

The following idea, recently discussed in the *AMA News*, was advanced through the *Mississippi Doctor* many years ago: The human being is all in one piece, but made up of physical, mental, and spiritual facets which need to be kept in balance. The spiritual side of man has been neglected. The best cure for problems in medical ethics is the fuller development of spiritual assets. When a man has the right spirit within, he does not have to worry about his ethics quotient. When he lacks the understanding and wisdom of the Golden Rule, it is as reasonable to expect water to run uphill as to expect him to practice righteousness. No doubt that the physician, the clergyman, and the psychiatrist should work together for the cure of the sick person.

HEALING SOULS: As are result of a North Carolina minister's crusade, hospitals in some 30 *states have put specially trained clergymen beside physicians in "healing teams" to treat bodies and souls at the same time.*

GOLDEN T RECIPIENTS

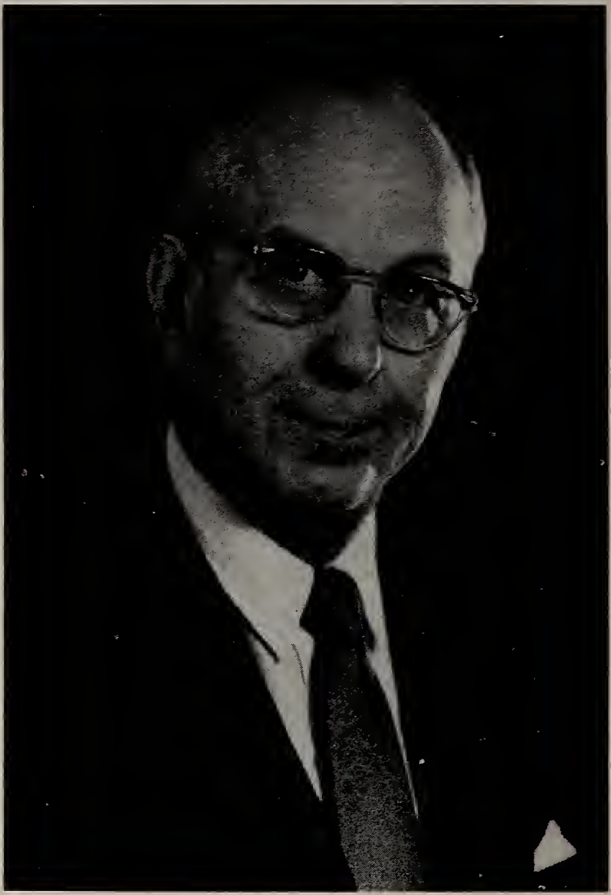
On September 21, at the University of Tennessee graduating exercises, eight Mississippians were recipients of Golden T certificates, indicating that they graduated from this great school fifty years ago. These are: Drs. B. C. Tubbof Smithville, Joel Walter Howell of Durant, Marvin Montgomery Hall of Swiftown, William Banks of Philadelphia, Albert Vernon Richmond of Lake Cormorant, J. Herman Hughes of Kossuth, James M. Mason of Purvis, George Washington Eubanks of Greenville.

This exercise marked the 165th year of the University of Tennessee, now the largest medical school in the United States. Dr. O. W. Hyman, for many years dean, shares in the credit for building this great school.

It has been estimated that if the chemical elements composing the average human body were isolated and sold at commercial prices, their total worth would be about $1.00: oxygen 65 per cent; carbon 18; hydrogen 10; nitrogen 3; calcium 1.5, and six or more other elements in smaller quantities. What then makes human values so great? It must be soul and spirit, the freedom of the will to direct thought and action—in sum personality and character whose price tag bears eternal worth.

News and Comment

SOUTHERN MEDICAL PRESIDENT



Dr. Milford O. Rouse

Dr. Milford O. Rouse of Dallas, Texas, is the president of the great Southern Medical Association. Dr. Rouse is the type of man who puts heart and soul and personality into a medical organization. He thinks that no one thing is common or of little importance in the practice of medicine. He has medical vision and fine practical application. He carries lots of the spirit of the Southern Medical in his able leadership.

In promoting the SMA Convention which he will head in Atlanta, Ga., November 15-19, he urges:

"Atlanta is an epitome of the true spirit of the South—steeped in the traditions of historical landmarks, yet characterized by a progressiveness that has led to an undisputed place as one of the foremost cities of the South. Leadership in business, culture, education and medicine is accompanied by a gracious and cordial hospitality that makes visitors want to come again."

Pack your valise and be on your way to this great convention in a Southern city of multiple charms and assets.

THE NEW ORLEANS GRADUATE MEDICAL ASSEMBLY

The twenty-third annual meeting of The New Orleans Graduate Medical Assembly will be held March 7, 8, 9 and 10, 1960, headquarters at The Roosevelt Hotel.

Nineteen outstanding guest speakers will participate and their presentations will be of interest to both specialists and general practitioners. The program will include fifty-six informative discussions on many topics of current medical interest, in addition to clinicopathologic conferences, symposia, medical motion pictures, round-table luncheons and technical exhibits.

Following the meeting in New Orleans, arrangements have been made for clinical cruise on the M/S Franca "C" to the West Indies, leaving from Port Everglades, Florida, on Saturday, March 12. The itinerary includes visits to Puerto Rico, Virgin Islands, Martinique, Barbados, Trinidad, Curacao and Haiti, returning to Florida on Friday, March 25.

Details of the New Orleans meeting and the cruise are available at the office of the Assembly, Room 103, 1430 Tulane Avenue, New Orleans 12, Louisiana.

EMORY OFFERS POSTGRADUATE COURSE

The Department of Ophthalmology of the Emory University School of Medicine announces a postgraduate course in Applied Ophthalmic Pathology on December 3 and 4, 1959, at the Grady Memorial Hospital, Atlanta, Georgia. The guest lecturers will be Dr. Lorenz Zimmerman of the Armed Forces Institute of Pathology, Washington, D. C., Dr. T. E. Sanders of Washington University, St. Louis, Dr. J. A. C. Wadsworth of Columbia Presbyterian Medical Center, New York, and Dr. J. T. Godwin of Atlanta, Georgia.

TB ASSOCIATION OF NEW ORLEANS

"Mycobacterial and Mycotic Diseases with Special Reference to Childhood" will be discussed by a number of medical authorities at a one-and-a-half day conference in New Orleans, Louisiana, on December 10-11, 1959.

The event is to be sponsored by the Tuberculosis Association of Greater New Orleans, and co-sponsored by the Louisiana State Medical School, the Tulane University School of Medicine, and the Orleans Parish Medical Society.

The Conference will be underwritten by TAGNO and there is no registration charge. Specialists, general practitioners, pediatricians, and graduate nurses are being invited to attend the sessions.

MONOGRAPH PRIZES OF THE AMERICAN ACADEMY of ARTS and SCIENCES

Three $1000 prizes will be awarded annually to the authors of unpublished monographs—one each in the fields of the

1. Humanities
2. Social Sciences
3. Physical and Biological Sciences

A monograph is defined for the purpose of these awards as a "scholarly contribution to knowledge, too long for an article in a learned journal and too specialized for a general book."

Recipients of these prizes will be expected to make their own arrangements for publication.

The final date in 1960 for receipt of manuscripts by the committee on awards is October 1. Announcement of the awards will be made in December. Full details concerning these prizes may be secured on request by sending a stamped self-addressed envelope to the Committee on Monograph Prizes, American Academy of Arts and Sciences, 280 Newton Street, Brookline Station, Boston 46, Massachusetts.

TOTAL AVERAGE COSTS FOR 4 YEARS OF MEDICAL SCHOOL & STUDENT INDEBTEDNESS

The total average expenses, according to family composition for four years in medical school were tabulated for 4,277 male members of the graduating class of 1959. Assuming that expenses were evenly distributed for each of the four years, the total costs per year would be: $2,376 for a single student; $2,763 for a married student; $3,210 for a married student with 1 child; and $3,925 per year for a married student having two or more children.

A sample study of medical student financial considerations in 1953 by Counts & Stalnaker indicated that about one-third of the medical students expected to be in debt at graduation and three per cent expected to be in debt more than $10,000. The preliminary figures for the 1959 graduating class show that 52 per cent are actually in debt and 6.5 per cent are in debt more than $10,000.

SAMPLING OF ACADEMIC DEFICITS

Budgeted academic vacancies in the United States medical schools have shown an alarming increase in recent years. For instance, budgeted vacancies in 1957-58 were almost twice the number reported for 1956-57—331 as contrasted with 619.

More startling, however, were the results of a sample questionnaire relative to the number of additional faculty needed, over and above vacant budgeted positions, to teach medicine as it should be taught today. Twenty schools (12 tax supported and 8 private) reported an average need of 50 additional faculty members.

MEDICAL GRADUATE NEEDS IN 1975

The population of the United States is expected to rise by 60 million to a total 235 million by 1975. In that year a total of 310 thousand practicing physicians will be needed to maintain the present ratio of 132 physicians per 100,000 population. Unless the medical educational capacity of the country is immediately augmented, the number of medical graduates in 1975 will fall far short of the estimated requirement of 10,400 per year. Seventy-eight medical schools in the United States graduated only 6,861 students last year.

Ephebiatric Clinic

More and more pediatricians are finding ephebiatrics a most satisfying experience both professionally and personally. The ephebiatric patient is a grateful and challenging patient. He will tolerate nothing less than our full attention, will be satisfied with only complete explanations and reasons for our actions, and will repay our interest with confidence.

Letterman Hospital in San Francisco adopted the name "ephebiatric clinic" which comes from the Greek, and means approaching manhood.

No longer does the adolescent who feels ill have to be considered as an awkward individual and receive his care in a catch-as-catch-can atmosphere, the doctors there say.

PHYSICIAN WANTED: Active Medical Service; 285 bed hospital, excellent staff, good locality; salary $8330 to $16,000 annually depending on qualifications; retirement; other benefits. Write Manager, Veterans Administration Hospital, Montgomery, Alabama.

COURTESY CARD

LLOYD E. DEDDENS, M.D.
Practice Limited to Urology and
Urological Surgery
Diplomate American Board of Urology
714 No. State St.
Jackson, Miss.
Office FI 3-4787 Home FI 3-7106

Book Reviews

CANCER OF THE BREAST—by Willard H. Parsons, M.D., F.A.C.S. Charles C. Thomas, Publisher, Springfield, Illinois, 1959, pp. 232.

This concisely written book will be of special interest to physicians over the South because of the wide esteem of the author. But it will be welcomed equally by specialist and general practitioner, because of its concise, comprehensive treatment of the subject.

In his foreword, Dr. Warren H. Cole summarizes this book most skillfully. He states that "In ten well-chosen chapters the editor has covered all the important phases of carcinoma of the breast." The author wrote four of the chapters himself and has selected equally renowned authors for the other chapters.

Original contributions are presented by Stewart C. Blackshear, James K. Hinton, Eugene P. Pendergrass, G. W. Taylor, Jerome A. Urban, Frank W. Foote, Jr., Samuel F. Marshall, and others.

The book is a concise discussion of the more important and controversial aspects of this too-frequent disease. It is very well illustrated and reads easily. The authors deal with the practical aspects of breast cancer with an admitted amount of theory.

We heartily endorse this well-written, authoritative monograph.

Special Offer!

Soul of the Surgeon

Dark maroon fabricoid — 14-kt. gold-stamped

$1:00

YOU'RE NEVER TOO OLD

At 73, Andrew Dever of Kenney, Illinois, who has lost both legs, continues on the job of blacksmithing which he has been practicing for 55 years. "I enjoy my work," he says. "Some mornings I maybe don't feel so good and it would be easy just to lie in bed. Then I dress myself, swing over into the wheel chair, and out to the shop I go. I work up a sweat. I sing a little and pretty soon it's a beautiful day."

Deaths

DR. J. R. PERRY

Services were held September 24 at the family residence for Dr. Joseph Reed Perry of Rolling Fork.

Dr. Perry, who was 81, was born in Edinburg, Miss., and had lived in Sharkey County since 1911 where he practiced medicine following his graduation from Tulane University School of Medicine. He was a Presbyterian.

Survivors include his wife, Mrs. Willie Baskin Perry; a daughter, Mrs. John Green of Franklinton, La.;La.; two sons, Baskin Perry and Joe Reed Perry, both of Rolling Fork; and five grandchildren.

Dr. Perry was a graduate of Tulane University, class of 1904.

DR. C. P. MOSBY

Services were held on October 11 at the St. Patrick's Catholic Church for Dr. Charles Porter Mosby, 84, widely known retired physician, who died at the family residence after a lengthy illness.

Dr. Mosby had practiced medicine in Meridian for 50 years, specializing in eye, ear, nose and throat. He was a graduate of Louisville Medical College, Louisville, Ky.

Dr. Mosby had served his country in World War I and was a charter member of the T. C. Carter, Jr., Post, American Legion. He also held membership in the Lauderale County and East Mississippi Medical Societies.

A member of St. Patrick's Catholic Church, Dr. Mosby is survived by his widow, Mrs. Majie S. Mosby; two daughters, Mrs. Agnes Rand and Mrs. Sara Newton, Meridian; five sons, Charles P. Mosby Jr., John S. Mosby and Joe M. Mosby, Meridian; Herman W. Mosby, Canton, and Dr. William H. Mosby, Gretna, La.; 27 grandchildren and several nieces and nephews.

THE WILLIAM LEN
AT MAIN & MONROE IN THE CENTER OF THE SHOPPING & THEATRICAL DISTRICTS
RATES FROM $3.50
FAMILY-RATES Children under 14 FREE
NEWEST HOTEL IN MEMPHIS
250 ROOMS & BATHS
Coffee Shop Seating 300 - Circulating ice water & T.V. in every room
AIR CONDITIONED
HOMELIKE ATMOSPHERE
FOR RESERVATIONS JACKSON 6-6441
CONTACT K.W. NEWMAN, MANAGER

ANNOUNCING

The Twenty-Third Annual Meeting

of

THE NEW ORLEANS GRADUATE MEDICAL ASSEMBLY

Conference Headquarters—Roosevelt Hotel
March 7, 8, 9, 10, 1960

GUEST SPEAKERS

Leroy D. Vandam, M.D., Boston, Mass.
Anesthesiology
Clarence S. Livingood, M.D., Detroit, Mich.
Dermatology
Henry D. Janowitz, M.D., New York, N. Y.
Gastroenterology
John G. Walsh, M.D., Sacramento, Calif.
General Practice
E. Stewart Taylor, M.D., Denver, Colo.
Gynecology
Charles H. Burnett, M.D., Chapel Hill, N. C.
Internal Medicine
Donald D. Matson, M.D., Boston, Mass.
Neurosurgery
Frank R. Lock, M.D., Winston-Salem, N. C.
Obstetrics
Trygve Gundersen, M.D., Boston, Mass.
Ophthalmology
Carroll B. Larson, M.D., Iowa City, Ia.
Orthopedic Surgery
John J. Conley, M.D., New York, N. Y.
Otolaryngology
W. A. D. Anderson, M.D., Miami, Fla.
Pathology
Franklin H. Top, M.D., Iowa City, Ia.
Pediatrics
Raymond J. Jackman, M.D., Rochester, Minn.
Proctology
David G. Pugh, M.D., Rochester, Minn.
Radiology
Bentley P. Colcock, M.D., Boston, Mass.
Surgery
Robert M. Zollinger, M.D., Columbus, Ohio
Surgery
George C. Prather, M.D., Brookline, Mass.
Urology

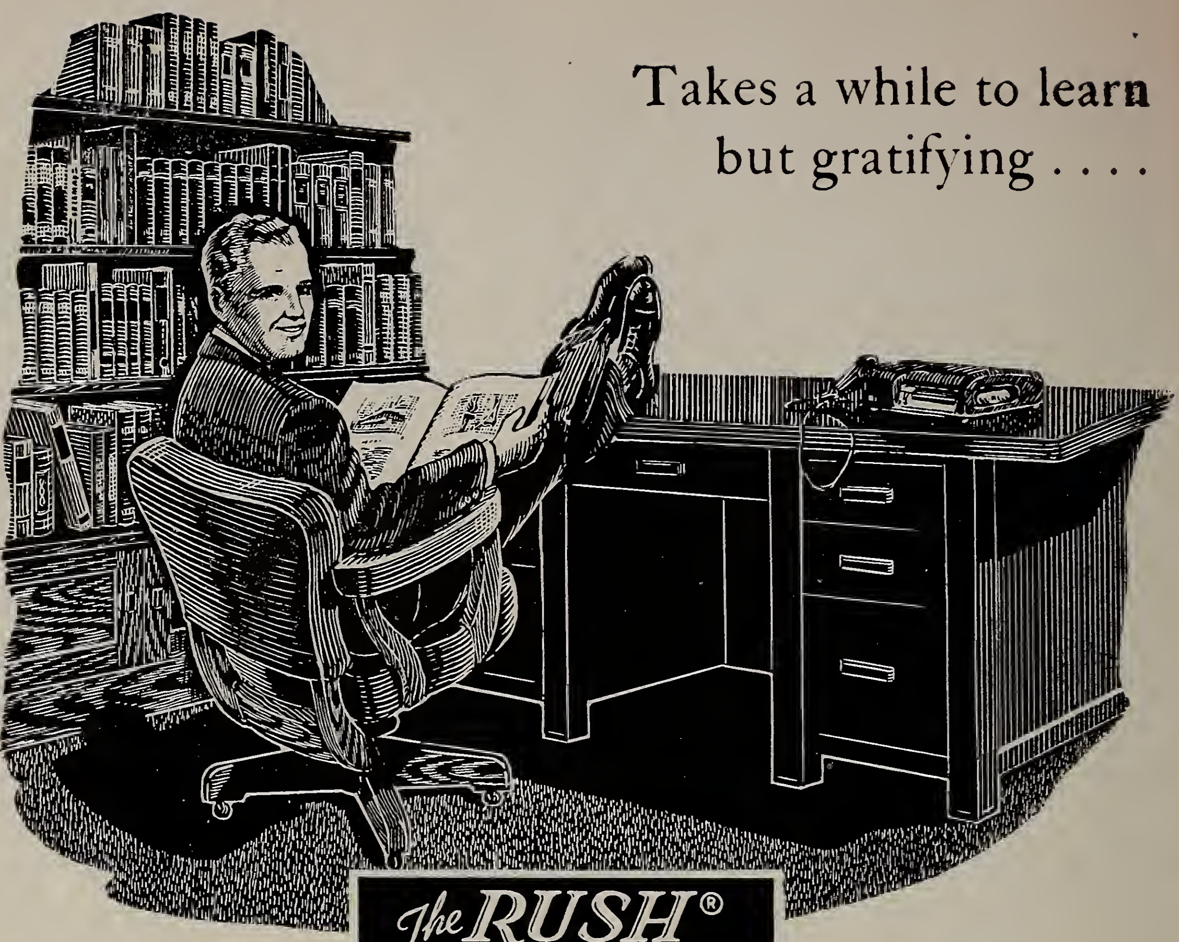
(All-inclusive registration fee—$20.00)

Lectures, symposia, clinicopathologic conferences, round-table luncheons, medical motion pictures and technical exhibits.

THE CLINICAL CRUISE TO THE WEST INDIES VISITING PUERTO RICO, VIRGIN ISLANDS, MARTINIQUE, BARBADOS, TRINIDAD, CURACAO AND HAITI

Leaving March 12 from Port Everglades, Florida, and returning March 25, 1960.
For information concerning the Assembly meeting and the cruise write
Secretary, Room 103, 1430 Tulane Avenue, New Orleans 12, La.

Takes a while to learn
but gratifying . . . .



The **RUSH**®
MEDULLARY PIN
Pat. No. 2,579,968

Proper application of the RUSH PIN is not always easy. It takes a while to learn. It is quite different in principle and technic from other forms of medullary fixation. It is not designed to impact the marrow cavity, but to accurately transfix the fractured bone by points of pressure, precisely applied.

The ingenious surgeon, who has added this to his knowledge and skills, has simplified his tasks and contributed pleasure to his patients. He minimizes surgery and speeds convalescence with unbelievably early motion, even in fractures near joints. Removable splints are sometimes used, but casts or traction, rarely.

The patient is more comfortable, the hospital stay is shortened. And best of all, the recovery time and residual disability can be markedly lessened.

It does take a while to learn, but it IS GRATIFYING!

Write for Information

THE BERIVON
Company
MERIDIAN, MISS.

EXCLUSIVE MANUFACTURERS OF **RUSH** MEDULLARY PINS AND INSTRUMENTS
Publishers of **"ATLAS OF RUSH PIN TECHNICS"** by LESLIE V. RUSH, M. D.

The MISSISSIPPI Doctor

THE MISSISSIPPI DOCTOR, DECEMBER, 1959 NO.

Christmas

. . . 'TIS CHRISTMAS WHEN CHRIST
DWELLS WITHIN THE HEART

In This Issue

RETROPERITONEAL CYSTS
Harwell Wilson, M.D., and D. T. Dodd, M.D.
MELANOSARCOMA INVOLVING THE GASTROINTESTINAL TRACT
R. R. Braund, M.D, and C. C. Lowry, M.D.
HISTOPLASMOSIS
Clyde A. Watkins, M.D.
RECONSTRUCTION OF THE NASAL SEPTUM
Eugene Hesdorffer, M.D.
HOSPITAL COSTS ARE REASONABLE
M. M. Winkler, CPA
CONTROVERSIAL CLINICAL ISSUES IN CORONARY DISEASE
Alva Bowen Weir. Jr., M. D.
PAPER ELECTROPHORESIS AS AN AID IN CLINICAL DIAGNOSIS
Thomas F. Puckett, M.D.
DELETERIOUS EFFECT OF THE INDOORS MECHANISM AND CONTROL
Emanuel Wittlin, M.D.

when you see signs of **anxiety-tension** specify

Dartal® dihydrochloride

brand of thiopropazate dihydrochloride

for rapid relief of anxiety manifestations

You will find Dartal outstandingly beneficial in management of the anxiety-tension states so frequent in hypertensive or menopausal patients. And Dartal is particularly useful in the treatment of anxiety associated with cardiovascular or gastrointestinal disease, or the tension experienced by the obese patient on restricted diet. You can expect consistent results with Dartal in general office practice.

with low dosage: Only one 2, 5 or 10 mg. tablet t.i.d. *with relative safety:* Evidence indicates Dartal is not icterogenic.

Clinical reports on Dartal: 1. Edisen, C. B., and Samuels, A. S.: A.M.A. Arch. Neurol. & Psychiat. *80*:481 (Oct.) 1958. 2. Ferrand, P. T.: Minnesota Med. *41*:853 (Dec.) 1958. 3. Mathews, F. P.: Am. J. Psychiat. *114*:1034 (May) 1958.

SEARLE

Retroperitoneal Cysts

HARWELL WILSON, M.D., and D. T. DODD, M.D.†
Memphis, Tennessee

Retroperitoneal cysts are rare and are only infrequently included in the differential diagnosis of abdominal tumors. The purpose of this paper is to call attention to a variety of such cysts, emphasizing salient features concerning etiology, diagnosis, and surgical treatment. An unusual, illustrative case recently encountered on our service is presented.

Clinical Picture and Diagnosis

The diagnosis of a retroperitoneal cyst is usually difficult because of the absence of definitive symptoms. The most frequent complaints are the result of a general or local painless enlargement of the abdomen. Since cysts develop slowly, the symptoms are usually produced by pressure and displacement of surrounding organs. Such symptoms are frequently negligible until the cyst has reached an appreciable size.

The diagnosis is made by a process of eliminating other possible tumors. The importance of pyelography and barium enema has been pointed out by Lahey and others.[1] Lateral x-rays of the abdomen with these studies will frequently show anterior displacement of overlying organs by an expanding posterior mass. Smooth extrinsic distortion of adjacent organs is strongly suggestive of a cystic mass.

Occasionally the picture of an acute surgical abdomen will develop as a result of secondary hemorrhage or infection involving such a cyst. Occasionally a retroperitoneal cyst of the omental type may undergo torsion of its pedicle producing acute symptoms. The diagnosis is then usually made at laparotomy for some other suspected condition.

Definition and Etiological Classification

Handfield-Jones[2] defines a true retroperitoneal cyst as one lying in the retroperitoneal fatty tissue with no apparent connection with any adult anatomical organ save by areolar tissue. His classification is the one most frequently referred to in the literature and is reproduced below with some modifications. The etiology in many cases remains obscure.

A. Cysts of Mesocolic Origin
B. Traumatic Blood Cysts
C. Parasitic Cyst (Echinococcus)
D. Cysts Arising in Cell Inclusions
    1. Teratomatous and Dermoid
E. Cysts of Developmental Origin
    1. Kidney
    2. Pancreas
F. Lymphatic Cyst
G. Cyst of Urogenital Origin
    1. Pronephric
    2. Mesonephric
    3. Metanephric
    4. Mullerian
H. Mesenteric
I. Omental
J. Pancreatic
    1. True
    2. Pseudocyst

The last three classes are added for completeness. The mesentery and omentum actually represent anterior extensions of the retroperitoneal space, and although pseudocyst of the pancreas does not coincide with the definition of cysts given above, they represent the most frequently encountered ones in our experience.

Mesocolic cysts result from imperfect fusion of the various peritoneal layers. They occur within the boundaries of the ascending, transverse and descending colon. At surgery they will be found anterior to the spermatic or ovarian vessels, a point useful in distinguishing them from cysts of urogenital origin.

Traumatic blood cysts and parasitic cysts are fairly self-explanatory. The former result from incomplete resolution of retroperitoneal hematomas. They should be suspected in the presence of abdominal tumor and history of recent trauma. Echinococci may reach this space through the blood stream, by direct penetration of the intestinal wall or from rupture of a liver cyst. They are apparently rare in this country and we have had no personal experience with them.

Teratomatous and dermoid cysts are most commonly found in infants and young children and represent different degrees of cellular differentiation of primitive embryonal tissue. Willis[3] studied a total of 82 teratomatous cysts and found 6% to have occurred in the retroperitoneal space. Dermoid cysts may be recognized by a thick fibrous wall containing hair, sebaceous material and teeth. The diagnosis is rarely made preoperatively unless one sees evidence on roentgen films of teeth, bone, or other calcified deposits.

---

†From the Department of Surgery, University of Tennessee, Memphis; the Baptist Memorial Hospital and the City of Memphis Hospitals.

Many simple cysts are described as occurring in the region of the pancreas. Unless these contain pancreatic tissue, they are more than likely of nephrogenic origin. Polycystic disease and solitary cyst of kidney is well known. These cysts result from faulty union between collecting ducts and uriniferous tubules of the second or third order.

Lymphatic cysts are believed to arise on a mechanical or obstructive basis. As such they are thought to be related to cystic hygroma of the neck. Newman and Pinck[4] state that only eight cases were reported up to 1950. These cysts have a thin epithelial or endothelial lined membranous capsule surrounding a lumen containing serus, sanguinous or chylous fluid. They may be located anywhere within the retroperitoneal space and are frequently multilocular. Occurring most frequently in early decades of life, they may be congenital in origin and usually attain very large size.

Urogenital cysts develop in vestigial remains of the pronephric through metanephric segmentation of the Wolffian body. Since the latter is utilized in formation of epididymis and vas deferens in the male, undergoing atrophy in the female, resultant cysts are more common in the female. They occur around the kidney, behind the colon or near the head or tail of the pancreas. The mulierian duct forms all the genital organs in the female except the ovaries. As stated by Hennessey,[5] if this duct persists in the adult male, it follows the general course of the spermatic cord and will be adherent to the musculature of the bladder and prostate. Cysts are extremely rare in this structure but may occur anywhere along its course. Lloyd[6] *et al.* described such a cyst found to be causing urinary retention in a 26-year-old Negro. Removal required a perineal approach, with removal of both seminal vesicles, part of the prostate, and a portion of the bladder.

Mesenteric cysts of any of the above described variety may occur. Cyst-forming elements may be caught between leaves of mesentery and carried anteriorly to later undergo cyst formation. Cysts from reduplication of bowel occur here and will be apparent only at surgery. Intra-abdominal cysts moveable from side to side but fixed in an up and down fashion should suggest a mesenteric position. Omental cysts may be true or false. Pseudocysts of the omentum follow fat necrosis, traumatic hematoma or foreign body reaction. Their lining is fibrous and inflammatory. True cysts are usually lymphatic in type with an epithelial lining. They may occur anywhere in the omentum and unless fixed by surrounding adhesions are freely moveable. Occasionally having a true pedicle, they may undergo torsion producing the acute picture of twisted ovarian cyst or appendicitis.

Pancreatic cysts may also be divided into a true and false variety. Pseudocysts are by far the most common and represent the end result of pancreatitis or trauma. They originate within the vicinity of the pancreas, having their genesis in a hematoma which becomes encapsulated, the blood being transformed into a milky fluid by enzyme activity. They contain no true epithelial lining. Being located within the lesser peritoneal sac, they may be found between the stomach and transverse mesocolon, between stomach and liver under the gastrohepatic omentum, or between the layers of the transverse mesocolon. True cysts of the pancreas may be divided into congenital, papillary cystadenoma or a retention type. The latter are multiple, eventuate from occlusion of ducts due to inflammation or stones. Seldom reaching more than 1.5 cm. in diameter, they are of no clinical significance. Papillary cystadenoma arise from pancreatic epithelium, attaining as much as 8-10 cm. in diameter measuring. They

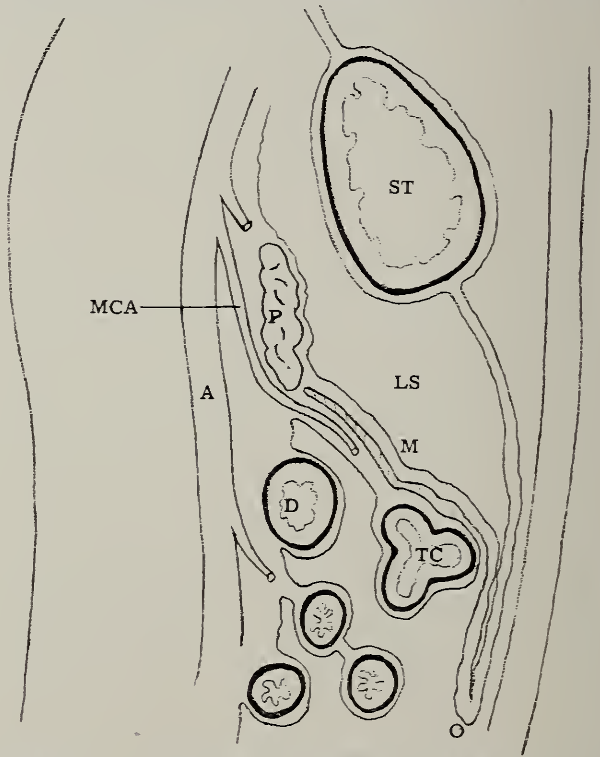


Figure I. Drawing illustrates normal anatomy of peritoneal folds.

ST—Stomach
P—Pancreas
MCA—Middle Colic Artery
LS—Lesser Sac
A—Aorta
D—Duodenum
TC—Transverse Colon
O—Omentum

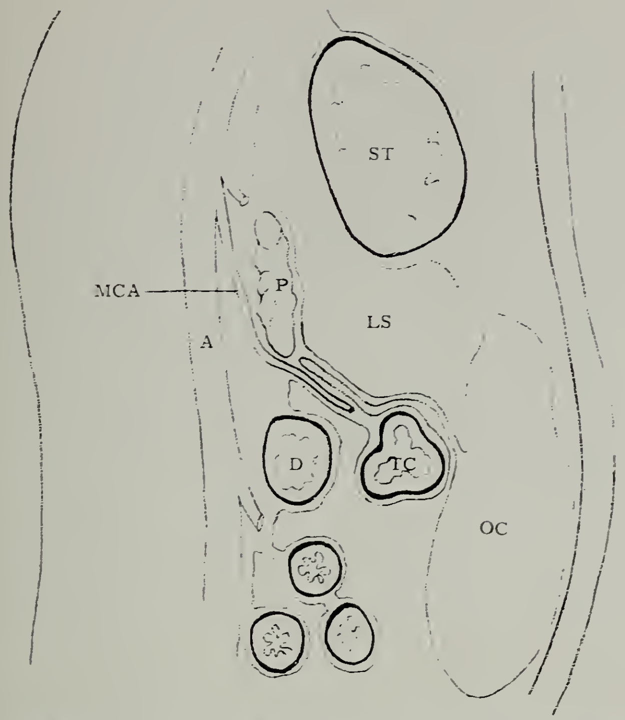


Figure II. Pancreatic cyst, PC, is shown in this illustration protruding anteriorly and displacing the lesser sac forward.

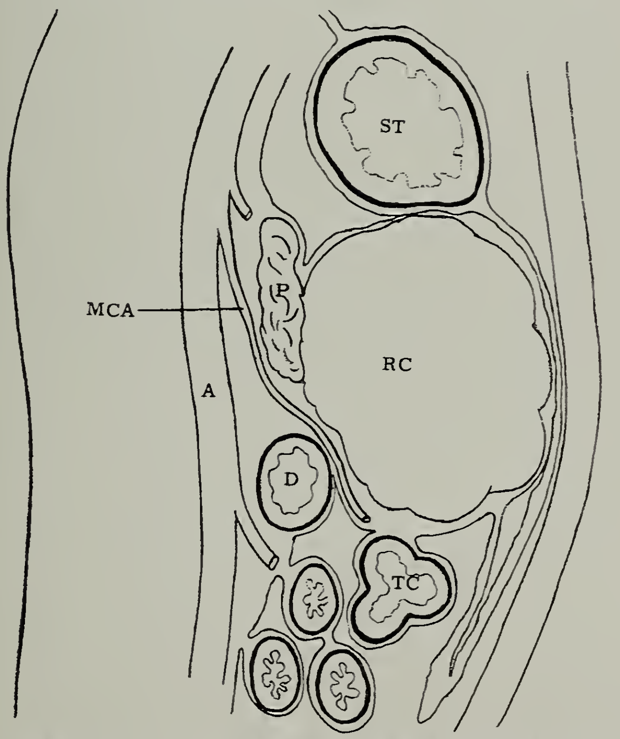


Figure III. OC represents large omental cyst occurring between the anterior and posterior peritoneal folds of the omentum.

have a true epithelial lining with numerous papillae projecting into a lumen containing milky or pale green fluid. In about 20 per cent of cases the epithelial element of the papillae may become invasive and frankly malignant. Congenital cysts may be multiple and as a rule are unilocular.

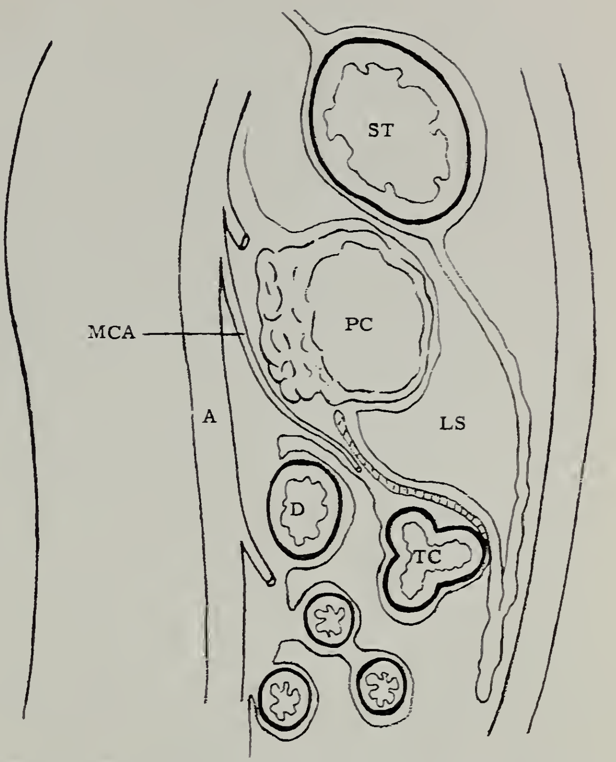


Figure IV. RC, retroperitoneal cyst, illustrates the position and relationships of the retroperitoneal lymphangromatous cyst described in the case report. Note intimate relationship of this cyst to middle colic artery, MCA; pancreas, P; and transverse colon, TC.

The connective tissue wall is lined by a single layer of cuboidal or columnar epithelium surrounding a cavity filled with pale yellow fluid containing pancreatic enzymes. These measure up to 8-10 cm. in diameter and are sometimes associated with cysts of the spleen and kidneys. Cysts of the pancreas in general cause more gastrointestinal symptoms such as epigastric pain, nausea, vomiting, constipation or diarrhea.

Treatment

The treatment of retroperitoneal cyst is surgical. Extirpation is the treatment of choice, although pancreatic cysts may require some form of internal drainage such as cystgastrostomy. Rarely is marsupialization indicated. As these may be intimately adherent to vital retroperitoneal structures such as ureters, duodenum or major mesenteric vessels, extreme caution and good exposure are necessary for safe removal.

Case Report

The following case is reported because it points out many of the salient features of retroperitoneal cysts in general.

G. C., a 47-year-old white male, was admitted to Baptist Memorial Hospital, October 23, 1959, with complaint of enlargement of the abdomen. Within the six months prior to admission his trouser size increased from 29" to 32" with no increase in other body proportions. Except for a feeling of fullness and an occasional bout of cramping pain, his general condition had been good, allowing him to carry on his farming duties. There was no anorexia or weight loss. Acute tenderness developed over the right lumbar region three days prior to admission. This developed while the patient was bending over picking cotton. Fourteen years prior to admission he had been operated upon for appendicitis but was found instead to have a "peritoneal cyst" which was removed.

Positive physical findings were limited to the abdomen. There was gross asymmetrical distention of the abdomen, being more marked over the right upper quadrant. There was flatness to percussion over the right with tympany over the left side. Bowel sounds were normally active: There was a mass suggesting the possibility of a cyst extending from right subcostal margin to the level of the anterior superior iliac spine. This extended beyond the midline for a slight distance at the level of the umbilicus.

Laboratory studies including fasting blood sugar were entirely within normal limits except for a trace of protein urea. Plain films of the abdomen showed the intestinal gas pattern to be displaced to the left by a fairly well circumscribed density in the right upper quadrant and lumbar region. Barium study of colon with lateral views revealed the transverse colon to be displaced anteriorly and inferiorly by this dense posterior mass.

In the absence of a history compatible with pancreatitis or trauma the diagnosis of pancreatic cyst was entertained but other retroperitoneal cysts were considered more likely. On October 27, 1959, exploration was carried out through a long right rectus incision. A large cystic mass with areas of loculation were presenting through the gastrocolic ligament. It was adherent to the greater curvature of the stomach above, the lateral wall of the duodenum to the right and markedly displaced the transverse colon and mesocolon inferiorly. The small bowel had been crowded into the left side of the abdomen. The structure was entirely located in the retroperitoneal space. The gastrocolic omentum was freed from its attachment to the colon. Upon developing a cleavage plain between the cyst wall and transverse mesocolon, it was found to be intimately attached to the middle colic artery, requiring careful dissection in this region. Completely freeing the cyst on all sides required resection of a small segment of the left gastroepiploic artery above and a small area of pancreatic capsule at the junction of head and neck of the pancreas posteriorly. There were a few small areas scattered through the pancreas suggesting chronic pancreatitis and another area suggesting fat necrosis along the superior border of the pancreas. The remainder of abdominal exploration was negative. The postoperative course was uneventful, with the patient leaving the hospital on the tenth postoperative day.

The gross specimen measured 19 x 10 x 4 cm., was multiloculated and was covered by yellow, wrinkled, fatty tissue. The loculated areas were filled with gelatinous-like yellow fluid. Microscopically there were varying sized endothelial lined cystic spaces some of which were cavernously dilated. The spaces were filled with pink staining albuminous material and surrounded by a fibro-collagenous wall. The larger cystic area contained varying degrees of fibrin and inflammatory cells; others had cholesterol cleft formations with foreign body reaction suggesting old hemorrhage into portions of the tumor. There were scattered areas of lymphoid follicle formation. Microscopic diagnosis: cystic lymphangioma, cavernous type containing areas of old hemorrhage and inflammatory reaction.

Scattered areas of hemorrhage and inflammatory reaction suggest recent trauma to the cyst accounting for the development of the acute tenderness prior to admission.

Summary

1. The clinical picture presented by retroperitoneal cysts is described.

2. A discussion is given of the various types of retroperitoneal cysts which may be encountered.

3. The salient features concerning diagnosis and surgical treatment are reviewed.

4. An illustrative case from our recent experience is presented.

BIBLIOGRAPHY

1. Lahey, F. H., and Eckerson, E. B., "Rectoperitoneal Cysts." *Annals of Surgery*, 100:231, 1948.
2. Handfield-Jones, R. M., "Retroperitoneal Cysts: Their Pathology, Diagnosis and Treatment." *British Journal of Surgery*, 12:119, 1924.
3. Willis, R. A., "The Structure of Teratomata." *Journal of Pathology, and Bacteriology*, 40:1, 1935, London.
4. Newman, H. R., and Pinik, B. D., "Primary Retro-peritoneal Tumors: A Summary of 33 Cases." *Archives of Surgery*, 60:879, 1950.
5. Hennessey, R. A., "Mullerian Duct Cyst." *Journal of Urology*, 42: 1042, 1939.
6. Lloyd, F. A., and Bonnett, D., "Mullerian Duct Cyst." *Journal of Urology*, 64:777, 1950.

May Happiness be Yours
at Christmas--and Always

Melanosarcoma Involving the Gastrointestinal Tract

R. R. BRAUND, M.D.[†]
Memphis, Tennessee
and
C. C. LOWRY, M.D.
Murray, Kentucky

OF ALL THE malignant tumors with which man is afflicted there in none in which the clinical behavior is more unpredictable than melanosarcoma. Widespread metastases may result from a primary lesion that shows little or no clinical signs of cancer. That the gastrointestinal tract is frequently involved by metastases may be overlooked even at necropsy unless a careful search is made.

In nine consecutive autopsies on patients dying from melanosarcoma the stomach and intestines were found to be involved by metastases four times and in a fifth the primary tumor appeared to arise in the ileum. Acute peritonitis subsequent to the perforation of a single metastatic lesion in the proximal jejunum was the cause of death in one patient.

A tenth patient still living developed small bowel obstruction two years after removal of a non-pigmented melanoma from the skin of the right leg. At operation there were eleven separate metastatic lesions in thirty inches of the upper intestinal tract. Resection of the involved jejunum with primary closure was performed. Convalescence was uneventful.

Few textbooks of pathology mention melanoma of the intestine. Ewing[2] states that "melanoma of the intestine, occurring almost exclusively in the rectum, forms about two to three per cent of all melanomas". Although Boyd[3] makes no specific mention of the small bowel, he states that "in rare cases . . . the pia mater, the adrenal, and the intestine, especially the rectum, may be the site of the primary tumor". Melanoma of the small bowel is not mentioned in the textbook of Moore[6], Bell[7], and Anderson[8]. In many papers dealing with malignant tumors of the small bowel, melanoma is not mentioned. A review of the literature on small intestine tumors by Nickerson and Williams[9] did not include the subject, and in 2,252 autopsies Chont[10] found only eight cases of cancer of the small bowel, none of which were melanoma. The subject was also omitted in an article by Frank, Miller and Bell[11] in 1942, and Medinger[12] in a report of 22 cases of cancer of the small bowel failed to include melanoma. Laidlaw[2] and Herbut and Manges[15] believe that primary melanoma seldom, if ever, occurs in the small intestine. They state that melanoblasts are found only in the skin or mucous membranes of ectodermal origin, and that these have never been demonstrated in the small intestine. For this reason they are inclined to believe that melanomata of the small intestine are invariably metastatic.

In reviewing the literature we found reports of 32 cases of melanoma involving the small bowel, and of these 10 were reported as primary[13] and 22 as metastatic[14]. To this group we wish to add 5 cases and report in some detail one in whom the primary tumor possibly arose in the terminal ileum.

CASE REPORT

J. A. C. — A white male, age 30 years admitted complaining of fatigue, weakness and abdominal cramps of a year's duration. Present illness began 18 months before when the patient noticed a small lump deep beneath the skin about the anus and a burning sensation when sitting down. The lump gradually increased in size. Six months prior to admission, he noticed a similar lump in the upper medial aspect of the left thigh. Two months prior to admission. weakness became so marked he had to discontinue his work. At that time, he noticed a yellow tinge to his skin and urine. His stools became very dark. His abdominal pain increased and he described it as intermittent, paraumbilical, and somewhat cramping in character, lasting for several minutes. Two and one-half months prior to admission, he developed nocturia of four to five times. He had lost approximately 50 pounds in weight.

Physical examination revealed a pale, moderately dehydrated white male. A careful examination of the skin showed no nevi and the patient denied ever having any removed. There was bilateral tenderness in both flanks of the abdomen on deep palpation and resistance of the muscles guarding the hypogastrium. Rectal examination was negative. Deep in the soft tissues of the right buttock five centimeters from the anus was a palpable mass four centimeters in diameter. A similar mass was palpated in the upper medial portion of the left thigh. Shortly after admission a mass could be palpated in the right lower quadrant of the abdomen.

LABORATORY FINDINGS — Upon admission RBC 2,670,000; urine analysis; sugar one plus, O to 5 WBC per HPF, four plus mucus, albumen negative, negative for melanin; positive in undiluted specimen for bile. Stool examination positive for blood and strongyloides larvae. Kahn negative; total protein 6.0 gm.%; alkaline phosphatase 3.1 King-Armstrong units. Blood fragility negative; icteric index 4; serum bilirubin 0.60 mgm.%; malarial smear negative. Urine analysis on the ninth hospital day was positive for melanin. X-ray of chest ngeative; x-ray of right hip revealed slight arthritic change. Gastrointestinal studies revealed the presence of an intramural mass in the small intestine, probably in the lower jejunum or ileum. Barium enema and proctoscopic examinations were negative. Repeat x-ray of the chest one month later revealed a

---

[†] From the Division of Surgery, University of Tennessee, School of Medicine.

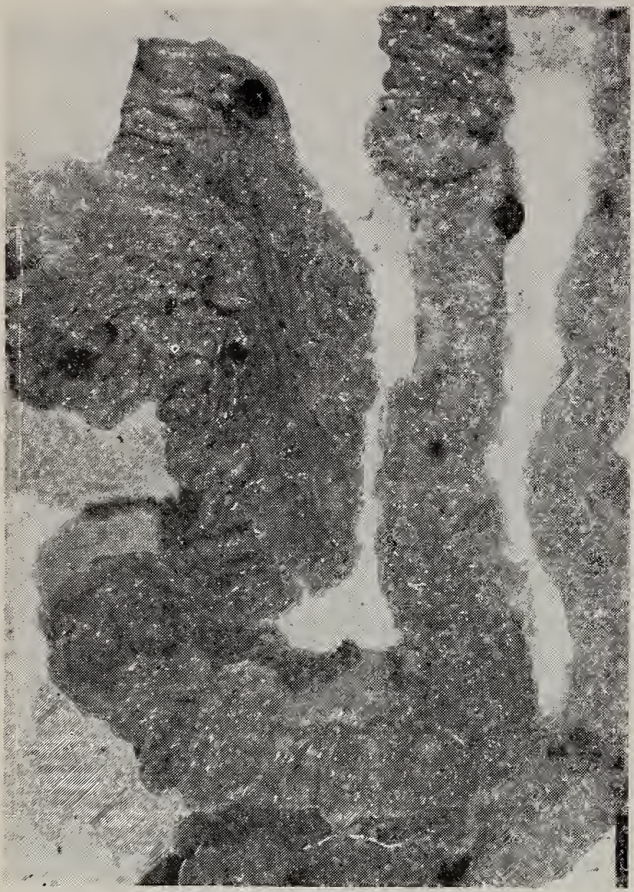


Fig. 1. Metastatic melanoma involving stomach, duodenum and jejunum. Primary tumor removed from scalp three years before death.

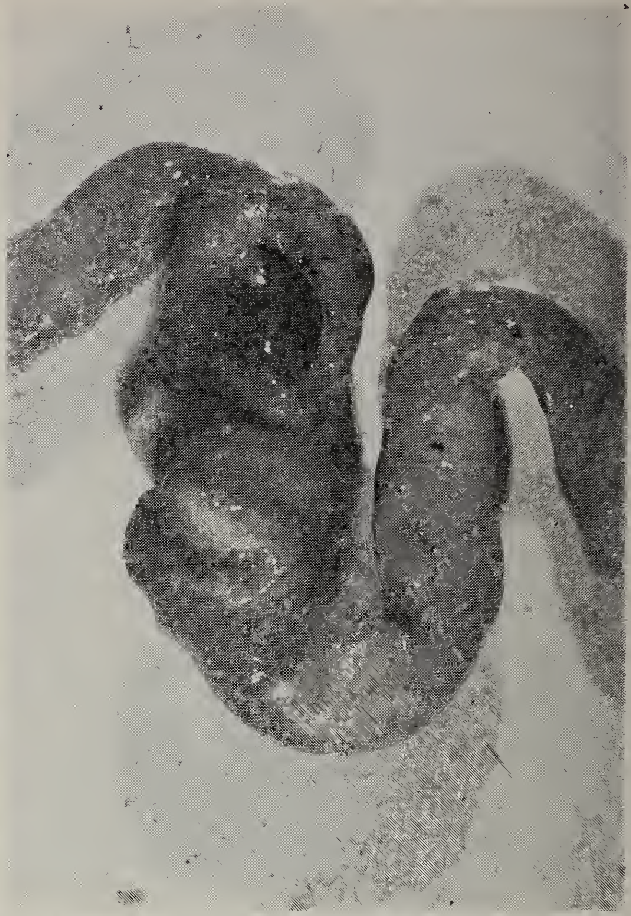


Fig. 3. Melanoma of terminal ileum. Possibly primary in the small intestine.

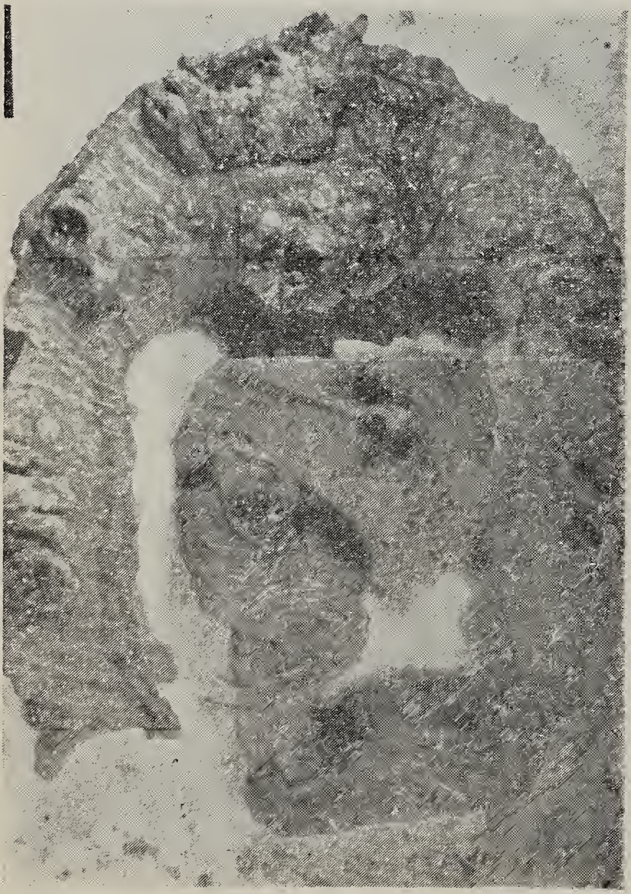


Fig. 2. Extensive metastatic melanoma of jejunum and ileum from a primary melanosarcoma of the skin of the chest.

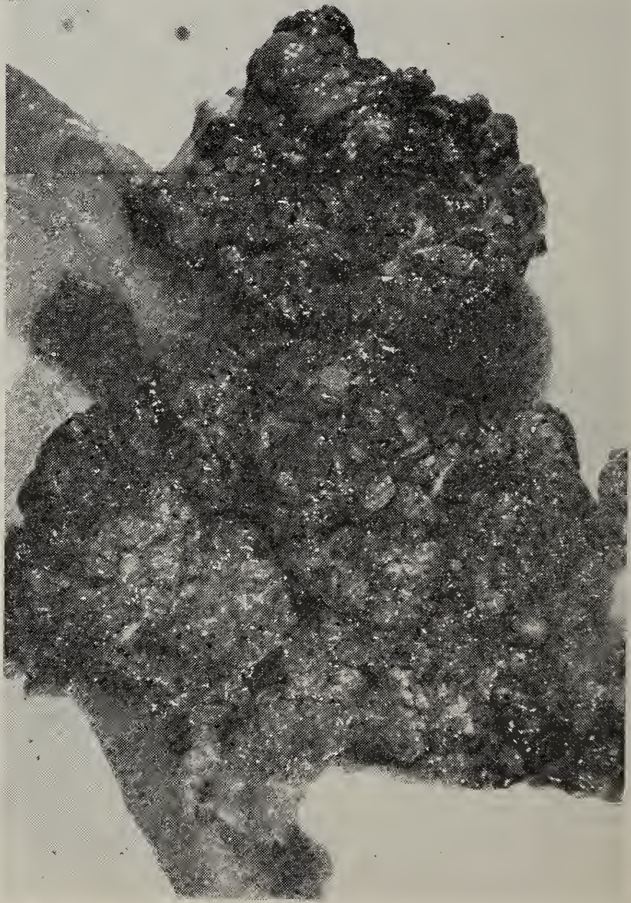


Fig. 4. Opened ileum showing ulcerative papillary malignant melanoma which produced partial obstruction.

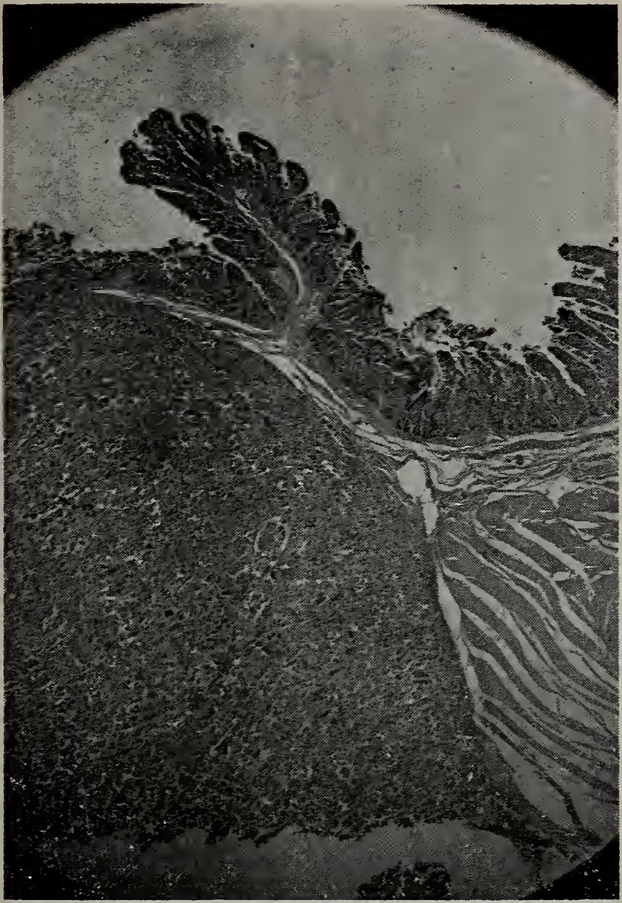


Fig. 5. Photomicrograph of the tumor shown in Fig. 4. Tumor involved all layers of the bowel.

solitary metastatic lesion in the right lower lung field.

Cystogram showed the urinary bladder to be normal in size, location and appearance. The walls were smooth, regular, and not thickened. Intravenous pyelogram showed both kidneys to be normal in size, shape and position. Excretion of the contrast media was prompt on both sides and the pelves. calices and ureters appeared within normal limits.

Course in Hospital: Biopsies of the tumor mass in the buttock and left thigh revealed malignant melanoma. On the basis of this report the lesion of the bowel was believed to be metastatic melanoma.

The patient had a persistent anemia of the hypochromic type, his blood count varying from 1,500,000 to 3,780,000; hemoglobin was as low as 3.2 gms. He received several blood transfusions. He died with moderate abdominal distention four months and twenty-two days after admission. An autopsy was obtained.

Diagnoses — 1. Malignant melanoma, gastrointestinal tract with metastases to the lungs.
2. Severe anemia.

Necropsy (one and one-half hours after death). The body was that of an emaciated adult white male. The abdomen was distended but symmetrical. A firm, irregular mass measuring about 13 cm. in diameter could be felt in the lower abdomen just above the symphysis pubis. The skin showed no pigmented growths. Two well-healed surgical incisions were present, one over the right buttock, the other over the medial aspect of the left thigh. A tumor mass measuring 6x6x4.5 cm. was present directly beneath the incision on the right buttock. This mass was brownish black and soft though not friable and was situated deep in the gluteus muscle. It was entirely separate from the overlying skin and subcutaneous tissue and had no connection with the rectum. There was some induration about the incision on the left thigh, but no tumor was found. The pleural cavities contained straw-colored fluid, 250 cc. on the right and 200 cc. on the left. The left lung was not remarkable and the right lung presented no abnormality except for a deeply pigmented tumor nodule 2.5 cm. in diameter in the base of the lower lobe. The nodule was round and fairly well demarcated from the surrounding lung tissue.

The peritoneal cavity contained 2,000 cc. of straw-colored fluid and there were numerous dense adhesions between the adjacent loops of small bowel. The jejunum and ileum contained six separate tumor masses. The greater portion of the ileum was well down in the pelvis and adhered to the dome of the bladder. This loop contained a large tumor mass measuring 13.5 cm. in its greatest dimension, and located 72 cm. from the ileo-cecal valve (Fig. 3). The tumor which was dark brown in color, involved all layers of bowel and invaded the fundus of the bladder. The other five tumor masses were in the upper ileum and lower jejunum. The smallest lesion was the highest being located 29 cm. below the ligament of Treitz. Three of the six lesions involved the entire circumference of the bowel wall and in two areas almost completely obliterated the lumen. The serosa was intact over all of the tumors, except the lowermost where the tumor penetrated the peritoneum covering the dome of the bladder. The mucosa over each tumor was ulcerated. The lower ileum and colon contained a large amount of dark bloody fluid. The rectum was examined and no abnormalities were found. Throughout the mesentery of the small bowel were enlarged lymph nodes containing melanotic tumor. The liver weighed 1380 grams and showed no evidence of pathological change.

The peritoneal surface of the fundus of the bladder was firmly adherent to the large tumor mass in the lower ileum; no other abnormalities of the genitourinary tract were noted. The brain and the spinal cord and their meninges were normal.

Microscopic examination — Each of the tumors in the small bowel was composed of nests and sheets of malignant tumor cells with some areas of necrosis. The tumor cells for the most part had a prominent oval to spindle-shaped nucleus with a reticular network and pink granular cytoplasm with an indistinct border. Large, prominent nucleoli were a conspicuous feature and there were numerous mitotic figures. The cytoplasm of many of the cells contained coarse brown pigment granules and in some areas the pigment was so abundant that cellular detail was obscured. Many multinucleated giant cells were present. The tumor often showed considerable variation from one section to another; in one the cells would be more or less irregular in size and shape with a tendency to alveolar formation while in another the picture would be pleomorphic with no definite pattern. The outlines of the tumor were fairly regular, (Fig. 5), but higher magnification usually showed the neighboring bowel parenchyma to be infiltrated with tumor cells. The mucosa over each ulcerated area showed an associated acute inflammatory reaction with scattered necrotic areas. The peritoneal surface of the bladder was covered by a wide zone of tumor tissue in direct continuity with the lower tumor mass in the ileum. Microscopically the mucosal and muscular layers of the bladder were free of tumor.

The metastatic lesions in the mesenteric lymph nodes, the lower lobe of the right lung and the right buttock corresponded microscopically to the bowel lesion. The epidermis and corium over the lesion in the right buttock were free of tumor and sections taken through the surgical incision on the left thigh showed no evidence of tumor.

Anatomical Diagnosis: Malignant melanoma possibly primary in the ileum with extension to adjacent areas of small intestine, bladder and metastases to mesenteric lymph nodes, lower lobe of right lung and buttock.

DISCUSSION

In this group of five patients with melanosarcoma involving the gastrointestinal tract, severe anemia was a prominent symptom in four instances. Stool examinations were repeatedly positive for occult blood. In two instances an obstructive lesion was demonstrated by contrast studies yet only in the case report above was the diagnosis made before surgery of necropsy.

From the study of this group of patients it appears that metastatic involvement of the gastrointestinal tract in patients dying from malignant melanoma is not as rare as the literature would seem to indicate. The diagnosis should be kept in mind in patients who have evidence of intestinal bleeding or obstruction subsequent to the removal of a mole or malignant melanoma.

SUMMARY

1. Involvement of the gastrointestinal tract by malignant melanoma was seen in four of nine patients dying of this disease and found to be the cause of intestinal obstruction in a tenth patient.

2. Primary malignant melanoma of the intestinal tract is rare.

3. A case of possible primary melanoma of the ileum is presented. The diagnosis was made on the basis of the extensive bowel involvement and then only after a most careful search failed to reveal any other source of the primary tumor.

4. By x-ray therapy this patient was spared an operation for intestinal obstruction, and operation that would have been technically difficult and of questionable palliation.

5. Gastrointestinal involvement by metastases should be suspected in patients with malignant melanoma who show signs of intestinal obstruction or hemorrhage

REFERENCES

1. Masson, P.: Les naevi Pigmentaires; Tumeurs Nerveuses, Ann.d' anat.path. 3: 417, 657, 1926.
2. Laidlaw, G. F.: Melanoma Studies; dopa reaction in general pathology. Am.J.Path. 8: 477-490, Sept. 1932.
3. Boyd, W.: A Textbook of Pathology, ed.3, Philadelphia, Lea and Febiger, 1938, pp.322-323.
4. Foot, N. C.: Pathology in Surgery, Philadelphia; J. B. Lippincott Company, 1945, pp. 444-445.
5. Ewing, J.: Neoplastic Diseases, ed.4, Philadelphia, W. B. Saunders Company, 1940, p.965.
6. Moore, R. A.: A textbook of Pathology, Philadelphia, W. B. Saunders Company, 1945, p. 1283.
7. Bell, E. T.: A textbook of Pathology, ed.5, Philadelphia, Lea and Febiger, 1944, p.327.
8. Anderson, W.A.D.: Synopsis of Pathology, St. Louis, C. V. Mosby Company, 1942, p.570.
9. Nickerson, D. A. and William, R. H.: Malignant Tumors of Small Intestine, Am.J.Path.,13: 52-64, Jan., 1937.
10. Chont, L. K.: Sarcomas of the Small Intestine and Reference to Their Radiosensitivity, Radiology, 36: 86-97, Jan., 1941.
11. Frank, L. W., Miller, A. J. and Bell, J. C.: Sarcoma of Small Intestine, Ann. Surg., 115: 544-565, April 1942.
12. Medinger, F. G.: Malignant Tumors of small Intestine: Surg. Gynec. & Obst., 69: 299-305, Sept., 1939.
13. (a) Vander Veer, E. A. and Kellert, E.: Melanotic Sarcoma of Intestine, N. Y. State J. M. 17: 335, July 1917.
    (b) Cox, H. H. and Sloan, L. H.: Melanoma; Report of Case Apparently Primary in Jejunum. J.A.M.A. 82: 2021-2025, June 21, 1924.
    (c) Lund, F. B. Melanotic Sarcoma of small Intestine. New England J. Med., 201: 1133-1136, Dec. 5, 1929.
    (d) Menne, F. R. and Beeman, J.A.P.: Multiple Primary Melanomas of Small Intestine; Am.J. Digest. Dis. and Nutrition, 3: 786-789, Dec. 1936.
    (e) Fiske, F. A.: Intussusception Due to Intestinal Tumors, Ann. Surg., 106: 221-229, Aug. 1937.
    (f) Gordon, W. C.: Primary Melanoma of Small Intestine Rev. Gastroenterol, 8: 36-44, Jan. Feb. 1941.
    (g) Morrison, W. A. and Donath, D.: Tumors of Small Intestine, California & West. Med., 55: 235-237, Nov. 1941.
    (h) Wade, B. N.: Melanoma of Small Intestine. Northwest Med., 44, 388-390, Dec. 1945.
14. (a) Saphir, O.: Metastatic Melanoma of Jejunum. Arch. Path., 4:22-25, July 1927.
    (b) Maxwell, W.: Secondary Melanomata of Small Intestine with Chronic Intestinal Obstruction and Intussusception. M. J. Australia 2: 656-657, Nov. 24, 1928.
    (c) Robb, D.: Sarcoma of Small Intestine. Brit. M.J. 2: 1007, Nov. 30, 1929.
    (d) Wilbur, D. L. and Hartman, H. R.: Malignant Melanoma with Delayed Metastatic Growth. Ann. Int. Med. 5: 201-211. Aug. 1931.
    (e) Plewes, F. B. Malignant Melanomatosis. AM. J. Cancer, 26, 732-737, April 1936.
    (f) Mallory, T. B.: Case Report of Metastatic Melanoma. New England J. Med. 218: 1013-1014. June 16, 1938.
    (g) Mackey, F. H. and Hurteau, E. F.: Primary Melanosarcoma of Central Nervous System. Tr. Am. Neurol. Assn. 67: 82-88, 1941.
    (h) Morrison, J. E.: Tumors of Small Intestine. Brit. J. Surg., 29: 139-153, July 1941.
    (i) Bizzozero, O. J. and Collins, J. O.: Amelanotic Melanoma, Connecticut S.M.P. 5: 193-196. March 1941.
    (j) Jones, W. C., Dowlen, L. W. and Rand, F. H. Amelanotic Melano-Sarcoma of Jejunum, Bull-Jackson Mem. Hosp., 4: 34-36, Jan., 1942.

*Reconstruction of the Nasal Septum**

EUGENE HESDORFFER, M.D.
Jackson, Miss.

I AM SURE THAT each one of us has, at one time or another, been confronted with a patient who has nasal obstruction resulting from a deviated septum. Advice to these individuals regarding septal surgery has probably been guarded as the result in the end brought these patients inadequate benefit in all too many cases. The answer to this problem is not easy, and has been sought since the submucous resection was first devised. This is evident from the massive amount of literature on the surgical technique. However, the fact remains that the results obtained from this procedure are not all that is desired.

Numerous operations have been devised to alleviate nasal obstruction. The evolution of this type of surgery has consisted of every conceivable form from total removal of the septum with mucosa, to simple grids in cartilage or mucosa.

Septal surgery was introduced by Hartman and Ingals in 1882, and Peterson in 1883. It consisted primarily in removal of portions of the quadrangular cartilage. In 1889, Krieg went one step further and removed the entire septal cartilage. Boenninghaus in 1897 removed not only the cartilaginous septum, but also the perpendicular plate of the ethmoid, and the vomer. Asch followed in 1899 with cruciate incisions of the cartilaginous septum with all tissue thereto attached[1]. It was not until 1902 that Freer, and Killian in 1904 worked out the principles and technique of the present submucosa resection[4].

Since 1902, rhinologists such as Metzenbaum (1929)[3], Safian[5] (1935), Selzer (1944)[6], Lamont (1946)[7], Byers (1947)[8], Kazanjoin and Converse (1949)[2,9] have added variations in the technique.

The first true advance in this field came from the work done by Dr. Maurice Cottle of Chicago in 1946. His concept may seem similar to the submucous resection in many aspects, however, I shall attempt to point out the differences.

Embryologically, the nose arises from the mesial and lateral nasal processes. The two maxillary processes do not meet in front, but are joined by the downgrowth of the mesial nasal process. The maxillary processes encroach upon the medial nasal processes and push the latter backward to form a trough on the floor of the nose for the septum. The anterior portion of this trough is known as the premaxilla and can be a hazard in septal surgery.

If one studies the component structures of the septum from any anatomy book, he will find listed: the quadralateral cartilage, perpendicular plate of the ethmoid, maxillary crests and vomer. However, embryology reveals other structures among which is the premaxilla, which is located directly posterior to the anterior nasal spine and anterior to the vomer. Little mention of this structure can be found in most books even though it was known to exist by Mosher who wrote of the premaxilla in 1908[10].

Another structure that is seen on anatomical plates of the nose, and very often not spoken of, is the nasal spine of the frontal bone. The nasal spine should be considered as part of the septum.

Thus, from an anatomical and surgical standpoint, we can divide the septum into three portions:

1. Immobile, consisting of:
   a. Frontal spine
   b. Perpendicular plate of the ethmoid
   c. Medial portions of the nasal bones, that contribute to the formation of the septum.
   d. The vomer.
   e. The medial crests of the maxillary bones.
   f. The medial crests of the palatine bones.
   g. The rostrum of the sphenoid.
   h. The maxillary spine.
   i. The premaxilla.
2. Semi-mobile portion, consisting of:
   a. Quadrilateral cartilage.
3. Mobile portion, consisting of:
   a. The membraneous septum which is 8 to 10 mm. in length and located at the caudal end of the septal cartilage.
   b. The columella which contains the medial crura of the alar or lobular cartilages[11,13].

In the majority of cases in nasal injury, one finds a definite deflection of the caudal end of the septum. Often upon close examination, there is also fracture or displacement of the nasal spine and premaxilla on which the cartilaginous septum normally rests. Removal of the posterior two-thirds of the septum will not correct such a deformity. The caudal one-third of the septum requires special consideration. In some cases, re-fracture and setting of the premaxilla into the midline will produce complete alleviation of the deformity and a straight septum without removal of any portion of the septum.

---

*Presented before the Section on EENT at the ninety-first annual meeting of the Mississippi State Medical Association, May 12-14, 1959.

In the Killian submucous resection the caudal end of the septum is not done. Many rhinologists say that, "The cartilaginous and bony septum can be removed, but the anterior buttress of the septum must be left intact. If the anterior buttress is removed, the nose will become depressed along its dorsum." However, if the caudal end of the septum is not removed, and there exists a deflection of the premaxillary bone from the midline, the surgeon cannot alleviate the patient's obstruction. The septal remnants and mucosa will continue to be deflected from the midline.

The upper lateral cartilages extend deep into and under the nasal bones for a variable distance and are firmly attached to the undersurface of the nasal bones by perichondrial and periosteal fibers. In addition, the upper lateral cartilages are continuous with the cartilaginous septum anteriorly and superiorly. This gives much additional support to the nose as there is, in reality, only one cartilage compound on each side. The upper lateral cartilages are separated from the septal cartilage near the nasal tip. This forms a slight depression of the dorsum of the nose at this area[11],[12],[13].

It is difficult to sustain an injury to the nose, and particularly a fracture of the nasal bones without disturbing the septum. When the septum is injured, fractured or deflected from the midline in any manner, there is also an accompanying injury to the junction of the upper lateral cartilages with the nasal bones. This can, and does, predispose to a depressed nasal dorsum.

The importance of this area has long been recognized by Dr. Cottle who termed it the keystone or "K" area of the nose[14].

One might think of the "K" area in terms of stress and strain as does the structural engineer. Allow that the nasal bones represent two pieces of steel welded together in the midline and attached proximally at a fixed point. To support the distal ends, one places a "T" arch inferior to the distal ends of the steel beams and welds the arch to the steel beams for variable distances on their undersurface. The result will be two forces resisting depression of the steel beams: 1) the vertical portion of the "T" arch resting against the ground, and 2) the area of weld between the sides of the "T" arch and undersurface of the original steel beams.

If one exerts force on the vertical portion of the "T" arch, there will result a pulling apart of the weld to some extent. However, if one is careful and removes the vertical part of the "T" arch without disturbing the weld, the beam will continue to be supported, provided no additional weight is placed on its distal end. This also holds true in regard to the "K" area of the nose.

The surgical technique suggested is to expose the septum anteriorly on the right one-eighth of an inch from the caudal end of the septum, and elevate the perichondrium over the caudal end. From this point on, only that portion of the mucosa is elevated that is necessary to expose the obstruction, and only that portion of the septum obstructing is removed. The more that can remain untouched; the better the results.

If, however, there is a deviation of the caudal end of the septum, the upper lip is undermined and via this approach the anterior nasal spine is exposed and freed of periosteum. This leaves a direct entrance deep to the periosteum and into either side of the pyriform aperture. The periosteum can be elevated along the floor of the nose, or carried down from above by way of the septal elevations. When the pockets are joined, the entire caudal end of the septum, anterior nasal spine, premaxilla and maxillary crests are in full view. The remaining surgery can then be done by direct vision.

Sometimes a deflected premaxilla can be broken through the reset. Other cases necessitate removal of the premaxilla. Thus, through this approach surgery can be done on portions of the nose heretofore thought most difficult or even impossible.

If the septum and component parts require complete removal, there will be complications unless one considers and corrects these happenings before they occur.

With complete removal of the septum, the flaps may become flaccid, scar tissue may occur cutting down on the blood supply of the mucosa, resulting in atrophy of the septal flaps. This can be prevented by taking the removed cartilage and bone, cutting them into small pieces, and trimming them. These pieces are then inserted through the long nasal speculum between the septal flaps, placing the bone pieces where they were previously found, and cartilage pieces where they were found. The autogenous pieces continue to live and grow and prevent flaccid atrophic septal mucosal flaps. This, in effect, acts like a series of "Z" plastic flaps[15].

One moderate sized piece of cartilage or two smaller pieces are fixed into this area by sutures, or held in place by packing. The original incision should be closed by suturing.

With an intact "K" area, and reconstruction of the septum with autogenous bone and cartilage pieces, including the caudal end of the septum, only a little depression of the dorsum will likely occur[15]. If more sagging is anticipated, further reparation by replacement should be instituted.

To recapitulate, if we return to the comparison with the structural steel, we have removed the vertical portion of the "T" arch which is the septum, and not disturbed the weld, which is the "K" area. The area previously occupied by the cartilaginous septum has been replaced with a cartilage implant. This will prevent additional weight on its distal end by breaking the direct straight line of pull in the scar tissue which will inevitably form.

In summary, the essential differences between this technique, for correcting the deviated septum and the old submucous resection are:

1) Only that portion of the septum is exposed and removed as is necessary for correction.
2) The septum can be removed extensively, if necessary, if one:
    a) Tries to prevent the probability of atrophic, flaccid septal flaps by using cartilage and bone implants between the flaps.
    b) Tries to break up a straight downward pull on the nose by probable scar tissue formation with an anterior septal implant of cartilage and bone.
3) The importance of the premaxilla and frontal spine should always be kept in mind.

Surgery must be performed to alleviate symptoms to treat medically. With the submucous resection one can not obtain good results in deflections of the caudal end of the septum. With this newer method, any portion of the bony or cartilaginous septum can be operated on alone, or in conjunction with other nasal surgery, including rhinoplasty.

In conclusion, the correction of the caudal end of the septum is of utmost importance if the results of septal surgery are to be improved. In the past, the anterior part of the septum has been often neglected, but this situation is now rapidly being remedied, and the results are most gratifying.

REFERENCES:

1. Asch, J. J.: Treatment of Nasal Stenosis Due to Deflected Septum, With or Without Thinning of Convex Side. Laryngoscope 6:340-348 (June) 1899.
2. Converse, J. M.: Corrective Surgery of Nasal Deviations. 52:671-708 (Nov.) 1950.
3. Metzenbaum, Byron: Replacement of the Lower end of the Dislocated Septal Cartilage Versus Resection of the Septal Cartilage. Arch. Otolaryngology 9:282 (March) 1929.
4. Freer, Otto T.: Correction of Deflections of the Nasal Septum with a Minimum of Traumatism. J.A.M.A. 38: 636, 1902.
5. Safian, J.: Corrective Rhinoplastic Surgery. New York, Paul B. Hoeber P. 178-179, 1935.
6. Selzer, A. P.: The Nasal Septum: Plastic Repair of the Deviated Septum Associated with a Deflected Tip. Arch. of Otolaryngology 40:433 (Dec.) 1944.
7. Lamont, Edward S.: Physiology of the Nose and Its Relation to Plastic Surgery. Am. J. of Surgery. 72: 238-245 (August), 1946.
8. Byers, L. T.: Surgical Correction of Nasal Deformities. Surg. Gynec. and Obst. 84: 65-78 (Jan.) 1947.
9. Kazanjion, V. H., and Converse, J. M.: The Surgical Treatment of Facial Injuries. Baltimore, Williams and Wilkins Company. 1949. P. 339.
10. Mosher, Harris P.: The Direct Method of Correcting Lateral Deformity of Nasal Bones. Laryngoscope, 16: 281-264 (January) 1929.
11. Cottle, M. H.: Modified Nasal Septum Operations. EENT Monthly. 29: 480 (Sept.) 1950.
12. Rowland, A. L.: Rhinoplastic Applications to Submucous Resection of the Nasal Septum. A.M.A. Archives of Otolaryngology. 59:739 (June) 1954.
13. Williams, R. I.: Functions of the Nasal Septum as Related to Septal Reconstructive Surgery. Laryngoscope. 63: 212-219 (March) 1953.
14. Cottle, M. H., and Loring, R. M.: Corrective Surgery of the External Nasal Pyramid and the Nasal Septum for Restoration of Normal Physiology. 111. Med. Journal 90:119 (August) 1946.
15. Cottle, M. H., and Loring, R. M.: Surgery of the Nasal Septum—New Operative Procedures and Indications. Ann. Ot., Rh., and Laryng. 57: 705 (Sept.) 1948.

Friendships . . .

. . . enrich our lives, as do the lovely things
which adorn our best-remembered moments.
And friends, like these, both fragile and precious,
are to be cherished.

Histoplasmosis[*]

CLYDE A. WATKINS, M.D.
Sanatorium, Mississippi

FOR MANY YEARS following its recognition histoplasmosis was considered a rare and fatal disease. In 1945, there were less than 100 cases on record. In the decade, 1945 to 1955, it was found to be a widespread infection in the United States and usually a very mild disease.

It was first described postmortem in 1906 in Panama by Darling, who thought it was due to a parasytic organism and named it Histoplasma capsulatum. Later it was found to be a fungus. It was believed to be a tropical disease until 1926 when the first case was reported in the United States. In 1934, the first ante mortem diagnosis was made by demonstrating the organisms in circulating blood.

It had been noted for several years that large numbers of people with negative tuberculin tests, especially in the midwest, showed calcification on chest x-rays. This could not be explained on the theory that such calcifications were due to healed primary tuberculosis. Skin sensitivity to histoplasmin, a sterile filtrate of broth culture of the organisms, was established in 1941. In 1943, it was suggested that some fungus, such as Histoplasma capsulatum, may be the cause. Using skin tests, Christie, Peterson and Palmer reported significant correlation between histoplasmin sensitivity and pulmonary calcifications. They also reported marked geographic variation in skin sensitivity.

Since 1945, skin tests, along with complement fixation studies, have been used extensively in the investigation of histoplasmosis. It has been conclusively shown that the infection is very widespread in the central portion of the United States, especially in the Ohio and Mississippi river valleys. The fungus is widely found in cool damp soil of high organic content, such as chicken houses.

Instead of being a highly fatal disease it is usually a very mild disease, often considered to be a mild case of "flu." The vast majority of people infected recover spontaneously. The disease is protean and may range all the way from unrecognized disease to generalized overwhelming infection. In the generalized form the disease may attack all body tissues with preference for the lungs, liver, spleen and adrenals.

The disease may mimic tuberculosis in almost every respect. 1) Infection almost invariably occurs by way of the respiratory tract; 2) Primary infection usually causes only a transient unidentified respiratory illness. Spontaneous recovery is the rule with both, although either may progress to fatal disease; 3) Both cause a demonstrable skin sensitivity after six to eight weeks and pulmonary calcification commonly accompanies the healing process of both; 4) The x-ray evidence and the clinical picture of pulmonary histoplasmosis may resemble all forms of pulmonary tuberculosis from acute miliary to chronic cavitary disease.

We have been interested in the disease because of pulmonary manifestations and because Mississippi is in the endemic area. Mississippi borders on, but not within, the area of highest prevalence.

In 1952, a skin test survey was made of all patients in the Mississippi State Sanatorium by Dr. O'Neal. At that time the over-all incidence of positive skin tests was 22 per cent. This study showed a marked preponderance of positive reactors from north Mississippi. The dividing line apparently was Big Black River which flows from east to west through central Mississippi.

Among the patients from north Mississippi the incidence was 31.5 per cent positive. In south Mississippi the incidence was 12.8 per cent, a statistically significant difference. There was no significant difference between males and females, or white and negro patients in this study.

At the Mississippi State Sanatorium it was made a routine procedure in November 1956 to skin-test all patients admitted to the Sanatorium whose original sputum smears were negative for tuberculosis. Our routine included four skin tests, PPD (intermediate strength) blastomycin, coccidioidin, and histoplasmin. To help reduce the possibility of error these tests were all done by the laboratory personnel.

This series, so far, includes 445 such tests done on a total of 1295 admissions to the hospital since that time. Of this number 149, or 33 per cent, reacted positively to histoplasmin. Three (.6 per cent) reacted to coccidioidin, which was almost identical to the previous survey. There was only one doubtful positive reactor to blastomycin. Of those positive reactors, 74 per cent were male and 26 per cent were female, a significant difference that is borne out by all other surveys.

About one year ago the Mississippi State Board of Health Laboratory began doing complement fixation tests for fungi. Previously the material had been sent to the U. S. Public Health laboratories. Most of the positive reactors are now being followed up with serial complement fixation studies.

---

[*]Presented before the Section on Preventive Medicine at the ninety-first annual meeting of the Mississippi State Medical Association, May 12-14, 1959.

There is some cross sensitivity between related fungus antigens, reflected in skin and complement fixation tests. This probably does not present quite so great a problem as one might suppose since there is always a much more marked reaction to culpable antigen.

In attempting to evaluate the results of our skin tests the most obvious group would appear to be those who were positive to histoplasmosis and negative to tuberculin. Among the 445 tests, 45 came in this category. Of these forty-five, 34 were males and 11 were females. Thirty-four of these were from the northern part of the state, eleven from the southern part. Of these, 45 complement fixation studies were done on 22 and out of these eight gave positive reactions, the highest titer being 1:32. In none of this group did we demonstrate the organisms. While all of these people were admitted to the Sanatorium with a presumptive diagnosis of tuberculosis, it is interesting that out of these 45, only six were considered to have proved tuberculosis, meaning a positive smear or culture in our laboratory, a positive biopsy, or a pathological diagnosis of a resected lung tissue. Of the 45, there were five diagnoses of histoplasmosis and 11 diagnoses of suspected histoplasmosis. Here again there is the possibility that some of these pathological diagnoses are incorrect as they were reported as "compatible with tuberculosis." It has been shown that with proper staining Histoplasma capsulatum can sometimes be demonstrated in specimens that are otherwise not diagnostic.

The next to be considered were those who reacted to both histoplasmin and tuberculin. Of the 445 there were 90 in this group. Of these 90, there were 39 who demonstrated a stronger reaction to histoplasmin than tuberculin. Among these there was the same marked preponderance of males over females and the patients from the northern part of the state, as compared with the southern part. Of these 39, eleven were considered proved tuberculosis by sputum or pathological studies. There were some suspects but no final diagnoses of histoplasmosis among these.

A definite diagnosis of histoplasmosis depends upon actual demonstration of the fungus, but this is usually very difficult for all but the most experienced laboratory workers. Consequently, the diagnosis is often made on the basis of clinical evidence, skin and complement fixation tests.

Much of one's attitude in diagnosis, without demonstrating the organisms, depends upon his familiarity with the condition and confidence in the laboratory that does the complement fixation studies. At present our feeling is that a positive complement fixation test up to 1:64 on a single test is strongly suggestive. A rising or falling titer over serial studies is often very helpful. We are convinced that patients with chronic pulmonary disease, with positive histoplasmin and negative sputum for tuberculosis, should be investigated further for the possibility of histoplasmosis and more especially if PPD is negative.

The following are summaries of representative cases:

CASE OF MR. R.A.P., X-ray No. 22849: Seventeen-year-old white male, from south Mississippi, was first seen here March 31, 1956. He had had a cough and cold for several weeks with malaise and some dyspnea. There was no family history of tuberculosis. X-ray showed some small infiltrates in the left first interspace, with several areas of calcification in the hila. He was admitted to the Sanatorium April 3, 1956, at which time he was fairly asymptomatic except for slight cough and malaise on questioning. Sputum smears and cultures were negative. Bronchoscopy was negative; bronchogram was normal. PPD was negative. Histoplasmin was strongly positive. This patient was also given anti-tuberculosis drugs because of a strong suggestion of tuberculosis. On June 25, 1956, complement fixation for histoplasmosis was positive 1:64. His clinical condition showed gradual improvement as reflected in weight gain and cessation of cough. X-rays showed slow resolution of the lesions. He was discharged August 28, 1958, as undiagnosed pulmonary disease, suspect, 1) minimal tuberculosis, 2) histoplasmosis. In September, 1956, complement fixation titer was down to 1:6. In November, 1956, titer was 1:32, and the same in February, 1957. By this time x-rays had shown almost complete resolution of the disease. He was last seen in May 1957, at which time his titer was 1:16, and he was completely asymptomatic.

CASE OF Mr. E.C.D.: X-ray No. 24442. White male, age 32, college student in the northern part of the state and whose father died of tuberculosis 10 years earlier. Onset of illness was December, 1957, at which time he had a severe flu-like syndrome. X-ray at that time showed evidence of fairly extensive disease in the right upper lung which was rather typical of cavitary tuberculosis. Sputum examination was reported negative. Patient was treated with antibiotics. X-rays showed rather marked resolution but still definite disease in the right upper lobe when admitted February 3, 1958. He had had a symptomatic relapse of the original episode, but at the time of admission was almost entirely asymptomatic. Chest x-ray on admission showed a roughly triangular density in the outer right first and second interspaces. There was nothing to suggest infarct. Films showed marked resolution since the original x-ray made outside, but was still suggestive of tuberculosis. Patient had very little sputum. Sputum and gastric lavage smears and cultures were negative for tuberculosis. PPD was negative. Histoplasmin was positive (8 mm). Complement fixation tests were done by two laboratories, one reported negative, the other a titer of 1:8. These were repeated two months later with identical results. Because of the possibility of tuberculosis, it was felt advisable to give him the anti-tuberculosis drugs, which was done. The patient showed little evidence of disease remaining when he was discharged June 5, 1958, to continue the anti-tuberculosis drugs. He was last seen here February 28, 1959, at which time x-rays still showed small residual. He has returned to school. The discharge diagnosis was pulmonary disease of undetermined etiology; suspect, 1) tuberculosis, and 2) histoplasmosis.

CASE OF MISS M. T.: X-ray No. 18768. Forty-three-year-old white female from central Mississippi. First seen here as an out-patient in June of 1952 following a routine chest x-ray as a food-handler. At the time the patient was asymptomatic and very obese. Part of the history included a pelvic operation which, unknown to patient, was alleged to show carcinoma of the cervix. X-ray showed some evidence of minimal disease, which was thought to be tuberculosis, but the possibility of metastatic malignancy was also considered. Sputum smears were negative; chest x-rays at three- to six-month intervals showed very little change until February, 1958, at which time there was obvious extension of the disease in both lungs (due to marked obesity it was consistently difficult to get a good film of this patient). She was still asymptomatic and had not lost any weight. Patient was admitted for observation and further work-up May 29, 1958. She was afebrile and had an excellent appetite. Sputum smears were negative. Bronchoscopy was done June 4, 1958, which was negative. Bronchial washings were negative for tumor and acid-fast organism. On the same date a scalene node biopsy was done which to our surprise showed histoplasmosis, including demonstrable organisms. She was discharged home to her private physician, to whom the diagnosis was made known. She was advised to follow a routine of regular rest and light housework. She was last seen a week ago, at which time clinical appearance was unchanged.

MR. A.K.A.: X-ray No. 25342: This 65-year-old white male from south Mississippi was admitted to Chief complaint at that time was pain in left chest, the Mississippi State Sanatorium January 26, 1959. cough and expectoration, and shortness of breath. Patient was very emaciated and obviously seriously ill on admission. According to a report from a V.A. Hospital a definite diagnosis of chronic pulmonary histoplasmosis had been made in 1956 by smear and culture of the organisms. Histoplasma was again demonstrated in September of 1958. Patient was uncooperative and left against advice December 30, 1958. When admitted here x-rays showed evidence of a destroyed left lung, with a giant cavity in the upper lung and a rounded discrete mass extending from the upper left hilus into the cavitary area. There was also a large cavity in the right upper lobe. PPD was negative; histoplasmin was positive. Repeated sputum smears and cultures were negative for acid fast and histoplasma. We were suspicious of malignancy. A scalene node biopsy February 12, 1959, however, showed only "moderate sinus hyperplasia." Treatment was symptomatic and the patient expired February 23, 1959. Autopsy showed chronic pulmonary histoplasmosis of both lungs and involving the hilar lymph nodes. Cause of death was epidermoid carcinoma involving the entire left lung with terminal bronchopneumonia. We obtained positive culture of histoplasma after his death.

REFERENCES

1. Puckett, T.F.—Pulmonary Histoplasmosis; Study of 22 cases with identification of Histoplasma Capsulatum in resected lesions, Amer. Rev. Tuberc., 1953, 67, 453.
2. O'Neal, R. M.—Histoplasmin sensitivity in Miss.—A New Boundary, Pub. Health Reports, 1953, 68, 174.
3. Loosli, C. G.—Clinical, epidemiologic and laboratory aspects of Histoplasmosis, Med. Clin. N. Amer., 1955, 39, 171.
4. Furculow, M. L.—Histoplasmosis, GP, 1958, 18, 117.
5. Sutliff, W. D., Larkin, J. C. Jr., and Hyde, L.—Mycotic Diseases of the lung, Med. Clin. N. Amer., 1959, 43, 219.

Special Offer!

Soul of the Surgeon

Dark maroon fabricoid — 14-kt. gold-stamped

$1:00

MILWICK PRINTING COMPANY
BOONEVILLE, MISSISSIPPI

Hospital Costs Are Reasonable[*]

M. M. WINKLER, CPA
Tupelo, Miss.

In making the statement that hospital costs are reasonable, or undertaking to defend the statement, I am aware of the large burden of proof that is on me. I may not be able to prove it, but I would like to give you a few facts on the subject to think about.

What a patient considers to be the cost of hospitalization, as he sees his bill when discharged from a hospital, is nothing more than a transfer of a portion of the costs of operating a hospital. This is true when you buy a shirt. The cost of the shirt to the purchaser is simply the cost of making and distributing the shirt, plus a profit to those who make and handle it. If costs of manufacture and distribution go up, the costs to the ultimate user go up also. With one exception the same thing is true with respect to your hospital; when its operating costs go up, the patient's bill, which is his cost, must go up too; however, as you will hear later, we do not add a profit.

It is unfortunate that hospital costs to a patient are generally associated with unpleasant situations —accidents, operations, serious illness, and the like. So hospital bills, and therefore hospital costs, are usually seen in an unfavorable light conducive to complaints.

Nobody complains about paying $5.00 for a football ticket today, which is double what that ticket cost ten years ago. Attitudes and related circumstance have a great deal to do with a person's idea of reasonableness.

We admit that our operating costs have gone up; in 1949 our patient day cost was $8.84—in 1959 it was $18.84, or exactly $10.00 more per patient day, which looks and sounds high. The increase has been rather gradual from year to year except in the year 1958 when 29 per cent of the $10.00 total increase mentioned a moment ago occurred mainly as the result of changing from a 48-hour work week to a 40-hour work week. Every effort has been made to hold back cost increases as long as possible consistent with satisfactory hospital management.

Increases in charges to patients were also held back as long as possible. Two years ago when it appeared necessary to increase the income of the hospital because of rather heavy losses, increases in charges to patients were deferred a year because of crop failures in the area served by the hospital.

Let's analyze the term "patient day cost." It is the basis of the patient's bill, which is his hospital cost. In the hospital here in Tupelo, costs are grouped in 15 categories, as follows:

Administrative
Medical Care & Nursing
Anesthetics
Laboratory
Operating Room
Drugs
Electrocardiogram
Intravenous Solutions
Blood
X-Ray
Dietary
Housekeeping
Laundry
Heat, Light and Power
Maintenance & Repairs

Now let's compare the costs for 1949 and 1959:

	PER PATIENT DAY	
	1949	1959
Administrative	$ .72	$ 2.20
Medical Care and Nursing	3.31	6.13
Anesthetics	.45	.42
Laboratory	.34	1.84
Operating Room	*	.90
Drugs	.60	1.15
Electrocardiogram	*	.09
Intravenous Solutions	*	.36
Blood	*	.82
X-ray	.33	1.14
Dietary	1.65	1.93
Housekeeping	.59	.74
Laundry	.21	.50
Heat, Light and Power	.40	.23
Maintenance	.24	.39
TOTALS	$8.84	$18.84

A moment ago I stated that administrative costs amounted to 72 cents per patient day in 1949 and $2.20 in 1959. This is quite an increase. WHY? Well, let's see.

1. Salaries and wages increased from $13,800 in 1949 to $51,032 in 1959 for several reasons, among which are:
   - —the larger number of clerical employees necessary on account of the tremendous amount of paper work required, particularly that related to insurance-covered hospital bills.
   - —pay rate increases necessary because of the competitive situation in the personnel

---

[*] Presented at the annual meeting of the North Mississippi Community Hospital, Tupelo, Miss., November 1959.

market for clerical employees in our area.
— shortened work hours to match the almost universal 40-hour work week. This alone caused an effective 20 per cent increase in the cost of salaries and wages.

2. The adoption of social security benefits for hospital employees in order to match what was being done in other fields of commercial activity—factories, stores, banks, and even schools and churches.
3. The increase in paper work to which I referred a minute ago is interesting — office supplies cost $695.00 for 1949; in 1959 they cost $3,803.00.
4. Due to increased replacement costs, fire, tornado and similar insurance costs have increased 300 per cent in the past 10 years.

Medical care and nursing cost $3.31 per patient day in 1949 and $6.13 in 1959. The increase is due to several factors, such as:

1. Today, it takes two employees per patient to run a hospital; ten years ago only one was used. When you want hospital service, you want human beings to furnish it; automation with its mechanical labor-saving devices doesn't work in a hospital. Today, in the interest of better service, we have more nurses and nurses aides alone than we had total employees of the hospital in 1949.
2. Increases in rates of pay and shortening the work week from six to five days a week. We used to work 76 nurses, nurses aides, etc., 48 hours per week—now it takes 92 to cover the same work week, because of the reduction in hours from 48 to 40, in keeping with a highly competitive personnel situation.

Take laboratory costs next. They amounted to 34 cents per patient day in 1949 — in 1959 they amounted to $1.84. Laboratory tests are made at the doctor's request—the hospital has nothing to do with them, and this is said without any reflection on the doctor. Many laboratory procedures used today were not used ten years ago. In looking into the matter, we found 10 in just a few minutes' time. Here are just two as a sample:

R - A - Flocculation test on blood as an aid in diagnosis of arthritis.

Transaminase - Enzyme determination done on blood as aid in diagnosis of coronary occlusion.

You see they are done for the welfare of the patient. We are proud of our laboratory just as we are proud of every department in the hospital. We believe we have the best laboratory in north Mississippi. It has 12 employees working to help the doctors find out what a patient's trouble is, and how to effect a speedy and successful recovery. Ten years ago we had two employees.

The same situation applies in the matter of drugs, which cost 60 cents per day in 1949 and $1.51 in 1959. Many drugs now used—"kantrex", for treatment of infections, "sparine" for emotional situations, and "chloromycetin", all expensive to be sure, but expensive for reasons beyond our control, were not in use or even in existence in 1949.

When we consider those costs which in a way may be said to come entirely within the area of the hospital's sole responsibility and control, such as dietary costs, housekeeping, laundry, utilities and maintenance, we find much smaller increases; for example:

	PER PATIENT DAY	
	1949	1959
Dietary	$ 1.65	$ 1.93
Housekeeping	.59	.74
Laundry	.21	.50
Heat, Light and Power	.40	.23
Maintenance	.24	.39

You may be sure of one thing—All of the increases in costs came only after prudent consideration of them by the hospital's executives, or as the result of things beyond their control as in the case of the cost of supplies. For example, note the increase in price of these items since 1951 and 1949.

100-watt light bulb	40% more
Surgeon's gloves	61% more
Hospital bed	26% more
Wheelchair	127% more
Wool Blanket	60% more
Orthopedic frame	103% more

The cost of a roll of gauze bandage in 1949 was $2.75 compared to $5.10 today. A pair of scissors costing $10.19 in 1949 is now $16.50. Cotton balls for hospital use cost us $1.25 a bag in 1949; we are now paying $2.15 for the same item.

The patient's welfare has been paramount in every consideration. Here again we can furnish an example: In order to furnish more appetizing meals, several "mealmobiles" capable of keeping foods hot or cold, as desired, were bought. They cost around $1,000.00 each.

Increased costs are not related to hospitals alone; other costs parallel or exceed them. Take construction costs. Our present buildings cost about $544,000.00 to construct. It will cost over a million dollars for the new annex to be put up early in 1960 and it will be just about the size of our total present structure, but it will cost twice as much. It costs about $20,000.00 per room to build and equip a hospital today, and here are a few examples of what equipment costs:

X-ray with fluoroscope	$28,000.00
Operating room table	$ 4,000.00
Major surgical light	$ 2,180.00
Mealmobile	$ 1,295.00
Electrocardiograph	$ 770.00
New adjustable stretcher	$ 650.00

Some of this equipment may be used only a few years and then be outdated. This is the price of giving the best care possible.

Most of us are aware of the $1.00 per hour minimum required by law for most business and by competition for those not covered by law. In 1953 the minimum was 20 cents per hour—$8.00 per week—think of it—later it was raised to 40 cents per hour, then to 75 cents per hour and again to $1.00 per hour.

And who hasn't heard on the radio and TV about the increases in the cost of living from time to time? Food, clothing, automobiles, gasoline, hotels, motels, recreation—nearly everything has gone up.

Now, hospital executives, doctors and all related personnel have been trying to do something about this matter of costs; they haven't been negligent about it by any means. As a result of their efforts, the effect of increased costs on the patient has been lessened to some extent by decreasing the average number of days the patient stays in the hospital. The average length of stay in the hospital per admission has decreased about a third—from 12 days to 8 days. For example, for hemorrhoids, etc., the average stay per admission has decreased by 60 per cent, from 25.0 to 10.0 days. Substantial decreases have also occurred for: gallbladder diseases, 19.7 to 11.1; ulcers, 19.5 to 11.2; malignant neoplasms, 24.1 to 16.1; appendicitis, 12.8 to 6.5; and deliveries, etc., 10.1 to 4.4 days.

The effect of the reduction in the length of time the patient stays in the hospital is made even clearer by this example: On August 25, 1949, the hospital rendered a bill to a patient for an appendicitis operation totaling $92.00 for an 8-day stay. On October 19, 1959, ten years later, the hospital rendered a bill to a patient for an appendicitis operation totaling $100.60—only $8.60 or 9½ per cent more in cost for relatively the same operation.

There is much loose talk about hospital costs that is based on *neither fact nor fairness*. That is why I have tried to give you some true facts, which this hospital's records and related data reveal and support. But, *based on misinformation*, it could happen that the operation of hospitals could become the target of political opportunists seeking to further their political aims and ambitions. Now hospitals in general are not afraid, or unwilling, to disclose the facts about their operations. In fact, we are glad to tell about them, which is one of the reasons for this meeting.

We've never made a profit in the operation of our hospital since it began in 1937; *we don't want to*, for the reason that as long as we operate in a well-managed and economical way and break-even or lose a little money, we know that we have provided reasonably good hospitalization at the lowest possible cost, and I know I am correct in saying that when our costs are compared with those of comparable hospitals, we are low. But that is not the point—the point is whether we want the government to get into the hospital business as another step toward socialization and government regulation of everybody and everything. Just last week, Senator Wayne Morse of Oregon said that he would introduce a bill into the Senate next January to impose federal regulations on the steel industry.

Morse, speaking to a Democratic potluck dinner at Eugene, Oregon, said "The steel industry is no longer just a private business. It has reached the point now at which it is vested with the public interest."

I could go further into this matter of government regulation, but I get too excited when I talk about it.

I just don't want socialism and the socialization of business with its resulting destruction of independence, incentive and opportunity, also its enormous waste that is hidden and disguised but inevitably paid for in increased taxes. I don't think you do either.

So let's be reasonable when we discuss the reasonableness of hospital costs, and remember this: hospitals deal in human lives and human beings such as you and me, and we don't want to be kicked around. Despite criticism of every kind, *by every measure lower death rates—less loss of babies—extended length of life—decreased disability*, and *reduced suffering*—hospitals are returning substantial dividends to the American people, who should be grateful. Most of them are.

Controversial Clinical Issues in Coronary Disease *

ALVA BOWEN WEIR, JR., M.D.*
Memphis, Tenn.

Introduction

ONLY A SMALL number of the multitudinous points of controversy related to clinical aspects of coronary artery disease can be discussed herein. Though they are of tremendous importance, we cannot here go into the problems of pathology and pathogenesis, except as the latter may be related to the clinical problems of anti-clotting and dietary therapy. We must omit discussion of many issues, some small and some large, which because of facts or prejudice seem to be settled in the minds of most practicing physicians. For examples, it seems settled in practice, if not by fact, that 1) vasodilators are without benefit in acute myocardial infarct; that 2) hypotension in association with myocardial infarct should be treated with vasopressor amines; that 3) the acute infarct should be treated with anticoagulants in all cases except the very best prognostic group, and possibly those; and that 4) the danger of digitalis administration in recent infarct patients has been overemphasized.

The unsettled clinical issues which I have chosen to review are those which have posed greatest questions to me as I have dealt with patients and read clinical literature and which seems as yet quite unresolved by those doing clinical research on the subjects. These controversial issues to be discussed may be listed as questions, as follows:

1) What value, if any, have the so-called long-acting coronary dilators in angina pectoris?

2) What is the position of anticoagulant therapy in long-term management of coronary disease?

3) Of what importance is diet in the treatment and prophylaxis of coronary disease?

4) Has surgery any value in treatment of coronary insufficiency?

Surely no single clinician or institution could have attained sufficient controlled studies on these problems to give an authoritative answer. Indeed, it will be only by vast empiric observation, especially in controlled series of patients, that reliable answers will come. For our purposes as practicing physicians the theory, the pharmacologic studies, the animal experimentation, etc., are interesting, but answers to questions such as those posed herein can only come from experience. Thus, the material which I present is chiefly a report of experiences of others as recorded in the more significant reports in recent literature.

Long-Acting Coronary Dilators

There seems to be now a general awareness of the lack of value of most reports and most methods of study of coronary vasodilators. Of course there is universal agreement that for dissolution of the acute attack of angina, or for prophylactic treatment of the anticipated attack from contemplated effort, sublingual nitroglycerin is beneficial with a remarkable degree of uniformity. This is about the extent of agreement regarding coronary dilator drugs.

Each practicing physician is likely to judge drugs of this type on the basis of his own success with them, and experience with drugs in angina is easily attained. However, one who is scientifically interested would have to admit that a clinical problem as nearly 100 per cent subjective as angina pectoris cannot be dependably evaluated by mere "clinical impression." Using subjective evaluation alone, even with the "double blind" technique of study, one can find reports in literature to support any view he wishes to take, and the best of such studies have indicated that placebo is as effective as so-called "long acting coronary dilators."

A few studies, small-size series, have been done, using electrocardiographic changes after standardized exercise as an objective method of evaluation. Noteworthy is the study of Russek, et al[1]. Twenty-one carefully selected patients between 46 and 69 years of age with consistently positive electrocardiographic response to standardized exercise were studied. All had either an old myocardial infarct or angina pectoris or both. All were selected because of the presence of definite coronary disease plus improvement of exercise electrocardiogram following sublingual nitroglycerin in therapeutic doses.

Four drugs commonly used for their long-acting coronary dilator effect were tested for their lasting effect on the exercise electrocardiogram in these patients. Metamine (triethanolamine trinitrate biphosphate) two to six milligrams orally before breakfast had little or no effect. Nitroglyn (sustained-release nitroglycerin) in the 2.4 milligram dose recommended produced no effect but in doses two to four times that dose produced slight to moderate electrocardiogram improvement for six hours in two-thirds of patients. Paveril (dioxyline phosphate), two hundred to five hundred milligrams orally had slight and poorly sustained effect in only six patients. Peritrate (pentaerythritol tetranitrate) in ten to twenty milligram doses produced a marked effect in fourteen of the twenty-one patients. Its effect, said to be as great as that of sublingual nitroglycerin, was demonstrable for five to six hours after a one-hour latent period. If taken after food this effect was greatly reduced or abolished. The authors' conclusion was that only pentaerythritol tetranitrate could truly be called a long-acting coronary dilator.

---

*From the Department of Medicine, University of Tennessee College of Medicine, Memphis, Tennessee.

Workers in Birmingham[2] have been moderately enthusiastic about cutaneously applied nitroglycerin in two per cent ointment, finding that in a majority of patients its use three times daily greatly reduced or did away with their need for nitroglycerin sublingually.

More objective and double-blind studies of this as well as of the older and more recently described agents are needed. At the present time one can form almost as accurate a conclusion from his own clinical impression as from reported studies on long-acting coronary dilators. It may be that with presently available drugs we are doing as much as can be done with nitroglycerin alone, used for, and in anticipation of pain.

With the few studies which are available, plus the polled opinions of my colleagues, plus my own clinical impression, plus the desire that is in all practicing physicians to administer any harmless treatment which may have real benefit in such a distressing condition as angina, my own current attitude is that pentaerythritol tetranitrate should be given four times daily on an empty stomach in a dose of twenty milligrams. It is admitted that this attitude is subject to amendment or reversal upon the appearance of accurately done objective and double-blind studies which show it to be wrong.

Long-Term Anticoagulant Therapy

If the time-honored mechanism of coronary occlusion, i.e. thrombus formation, is valid, long-term anticoagulant therapy in patients who have angina pectoris or have experienced one myocardial infarct would certainly seem rational if safe. There would also seem to be rationale to such treatment if, as recently suggested, administration of anticoagulants actually does result in more prompt reduction in serum content of fat particles following eating. On the other hand if hemorrhage beneath intimal plaques accounts for a sizeable number of myocardial infarcts, as is suggested by work recently extended by Blake and Springer[3] in Jackson, Mississippi, it is entirely conceivable that anticoagulants may increase the problem.

Regardless of pathogenesis, if large series of studies uniformly result in the empiric finding that timed mortality statistics and frequency of myocardial infarct are significantly improved in treated as contrasted to control patients, and this in the absence of prohibitive hemorrhagic complications, it must be concluded that such management is an advantage.

Figure I tabulates results of the larger series encountered in a survey of literature. It may be seen that uniformly and considerably better mortality rates have been found in those receiving long-term anticoagulant treatment than in those receiving either short-term treatment or none at all.

The table does not include information as to hemorrhagic complications and their severity. This is because not all authors have given this information in a uniform mode of expression. It seems to be accurate inference from the expressions given, that perhaps five to twenty per cent of patients in long-term follow-up hfave some degree o hemorrhage experienced over many months to a few years follow-up, and that in only rare instance has death been attributable to drug-induced hemorrhage.

If figures such as are shown in the tabulated data are found with reasonable consistency, it would appear that at any given time in the life of an angina patient or post-infarction patients, two of three who would otherwise have died will

Figure 1.
LONG TERM ANTICOAGULANT THERAPY IN
CORONARY DISEASE

Author	No. pts.		Follow-up	Abandoned Therapy	
	in study	Duration	Treated	Controls	Mortality Rates
Suzman[6]	1461	1-10 yr.	0.56/100 pt. yrs.	5.3/100 pt. yrs.	4.45/100 pt. yrs.
Waaler[7] (Angina Pectoris only)	275	1 yr.	12 %	28.2%	37.4%
Manchester[4]	404	1-10 yr.	16.8%	31.7%	44.5%
		av.	5 %		15 %
Nichol, et. al.[5]	1091	22.4 mos.	21 %	29.3%	44.2%
Ensor & Peters[8]	408	5 yr.			(from lit.)
		10 yr.	24.6%	35.7%	67.6% (from lit.)

be living. This seems too good a result to even be hoped for, but much poorer results than that would still be highly pleasing.

It must be realized that these results are largely from workers and institutions where there has been much experience with use of anticoagulant drugs and prothrombin time techniques. Deficiency in either of those areas could certainly impair the benefit to be attained and add real danger to the use of such treatment. There is surely no reason that any practicing physician should refrain from using such therapy if he is willing to study the problem of drugs and dosage and to see to it that only accurate prothrombin time results are rendered from his laboratory.

Diet

Probably no subject in the field of cardiovascular diseases has had greater study and appeared more in literature in the past several years than that of diet in relation to atherosclerosis. The many facets of this problem are being studied extensively by *in vitro* chemical and histochemical techniques, by small as well as primate animal experimentation, by large scale epidemiologic investigation, and by short and long term clinical projects. Of greatest ultimate importance is the relation of diet to pathogenesis of atheroma.

If atherosclerosis is to be prevented by diet control, it is very likely that it will be necessary for diet to be qualitatively controlled from early life. It is hoped, however, that quantitative and qualitative regulation of diet can be of help to current generations in the absence of detailed knowledge of pathogenesis of coronary atherosclerosis.

The following generalizations regarding the diet-atherosclerosis problem seem from the literature to be quite widely accepted:

1) Population groups with high fat content in diet have high incidence, the converse also being true;

2) Diseases with high serum cholesterol have high incidence of associated atherosclerosis, e.g. familial hypercholesterolemia, diabetes mellitus, nephrosis;

3) Generally, high serum cholesterol, as well as total fatty acids and triglycerides, can be reduced significantly by diet changes:

(a) Total caloric reduction in the obese;

(b) Qualitative changes in fat content of diet.

It seems now to be widely accepted by research authorities in the field that a reduction in caloric intake can be expected to lower these parameters quite uniformly in the obese patient.

In studies with very careful dietary control in hypercholesterolemic patients, Ahrens and coworkers[9] have demonstrated, as have many other researchers, that the qualitative change in the fat content of the diet which is most important in lowering serum cholesterol and triglycerides is an increase in the proportion of fat which is made up of polyunsaturated fatty acids. From a practical standpoint, these are the plant oils excluding coconut oil. They are readily available for the American diet as cotton seed oil, corn oil, and peanut oil.

If we could here review all the information on dietary fat in relation to coronary sclerosis, we would still have barely scratched surface in the overall dietary relationship, because literally hundreds of studies are going on which attest to the importance of carbohydrate, both qualitative and quantitative aspects, protein content, and content of several vitamin and mineral substances. Such studies have not progressed to the place of being helpful to the practicing physician in dietary recommendations as yet. Effect of diet on clotting is also under intense study, but as yet without conclusions of clinical importance.

What has been gained, from a practical clinical standpoint by the acquisition of an ability to lower serum cholesterol, triglycerides, etc.? This is the question for the purely clinical investigator to answer by empiric study of atherosclerosis patients and continuing epidemiologic studies with large population groups over decades.

So, for the time being, what must you and I be recommending to our patients from a dietary standpoint for prevention and treatment of coronary atherosclerosis? A panel[10] of five of this country's outstanding experts in the field recently concluded fairly unanimously the following recommendations:

1) Weight reduction to a slender build in all obese patients, especially those with high serum lipids;

2) Attempt to reduce serum cholesterol by decrease in saturated fatty acids and increase in unsaturated in patients with high serum cholesterol (above 210 milligrams per 100 milliliters), even by ingesting uncooked corn oil prior to each meal if necessary;

3) Similar dietary program for individuals with known coronary disease, with a strong family history of same, or with hypertension as a predisposing factor.

This panel did not recommend, nor is it suggested by other authorities, that a radical change in the diet of the people of this country in general be carried out. This is because of the fact that, in spite of much suggestive evidence, there is not yet proof that diet is the salient factor in pathogenesis of atherosclerosis.

Surgery

Many surgical procedures have been tried for the purpose of relieving pain of angina pectoris, for reducing cardiac demand for blood (thyroidectomy), and more recently for revascularization of the myocardium. Here too, one can find literature reports to support almost any attitude. A tendency not too surprising is for the originator of a particular surgical procedure to find it of real benefit. Especially interesting are the reports in which sham operation was done, the patients believing that they had a certain procedure performed, with excellent therapeutic results. Since there is not a really suitable objective test for improved myocardial vascularization, we likely are yet a long way from certain answer as to the value of surgical procedures with that purpose.

Unbiased studies are so few and so small that a review of reported experience with surgery in coronary insufficiency is without certain value. Nevertheless, quite an extensive review was recently carried out and presented by Adams and Tanzi[11]. Evaluating results of the various procedures on basis of clinical change for worse or better, the authors concluded that the percentage of patients getting distinct improvement from surgical treatments, taken individually or collectively, was no better than that expected in the natural course of the disease with continued conservative management.

With the rapid advances now being made in cardiac and vascular surgery, it is to be hoped that a current procedure, or one as yet undevised, will yet prove to be a boon to the angina patient, and even the recent infarct patient. As yet it seems better judgment to withhold surgery except in those in whom all else has failed to produce even a tolerable existence. It should be understood, however, that this is a prejudiced attitude brought about by conservatism regarding radical and unproved methods in general. It is a healthy situation for clinical research that opinions vary on issues such as this until proof is at hand.

SUMMARY

I have discussed some of the major unsettled clinical issues regarding coronary disease, largely through literature review but also through prejudice produced by "clinical impression." The issues discussed *remain* unsettled, but at least the following conclusions seem valid:

1) So-called long-acting coronary dilators may be of no more benefit than placebo, but because some objective electrocardiographic studies show their value in diminishing myocardial ischemia, it is probably wise to continue their use. Pentaerythritol tetranitrate seems to have most in its favor of those which have been studied comparatively in an objective way;

2) Long-term anticoagulant therapy carried out with careful control against hemorrhagic mishap seems of proved value;

3) Little can yet be concluded regarding the practical value of diet control in prevention and treatment of coronary disease except that overweight and hyperlipemia should be treated, and can usually be beneficially affected by total calorie and qualitative fat adjustments; and

4) Surgery is not yet to be widely recommended as a treatment for coronary sclerosis.

BIBLIOGRAPHY

1. Russek, Henry L., Zohman, Burton L., Drumm, Alice E., Weingarten, Wm., and Dorset, Virgil Jr.: Long-Acting Coronary Vasodilator Drugs: Metamine, Paveril, Nitroglyn, and Peritrate. Circulation 12: 169, 1955.
2. Davis, James A. and Wiesel, Bert H.: Treatment of Angina Pectoris with Nitroglycerin Ointment. Am. J. M. Sc. 230: 259-263, (Sept.) 1955.
3. Blake, T. M. and Springer, P. K.: Intramural Hemorrhage in Coronary Atherosclerosis. Circulation, Vol. 17, pp. 907-911, 1958.
4. Manchester, B.: Prevention of Myocardial Infarction, A.M.A. Arch. Int. Med. 100: 959-964 (Dec.) 1957.
5. Nichol, E. Sterling, Keyes, John N., Gorg, Joseph F., Coogan, Thomas J., Boehrer, John J., Mulling, Wm. L. Scott Thornton, Page, Robert, Griffith, George C., and Massie, Edward: Am. H. J. vol. 55, pp. 142-152 (Jan.) 1958.
6. Suzman, M.: Presented at Assn. of Physicians So. Africa, 1959.
7. Waaler, B. A.: The Effect of Permanent Anticoagulant Therapy on Symptoms and Mortality in Angina Pectoris. Acta Med. Scandinav. 157: 289 (May 4) 1957.
8. Ensor, R. E. and Peters, H. R.: Long-Term Anticoagulant Therapy in Coronary Disease; J.A.M.A. 169: 914-918 (Feb. 28) 1959.
9. Ahrens, E. J., Jr., Insull, Wm., Bloomstrand, Rolf., Hirsch, Jules., Tsaltas, T. T., and Peterson M. L.: The Influence of Dietary Fats on Serum-Lipid Levels in Man. The Lancet, May 11, 1957, pp. 943-953.
10. Dock, Wm., Kinsell, Laurence W., Stamler, Jeremiah, Stare, F. J., and Wilkinson, C. F., Jr.: Panel discussion on atherosclerosis, American College of Physicians. Annual Session. April 22, 1959.
11. Adams, W. and Tanzi, F.: An Internist's Appraisal of Surgical Procedure for Angina Pectoris.

---

*Presented before the Section on Surgery at the ninety-first annual meeting of the Mississippi State Medical Association, May 12-14, 1959.

*Paper Electrophoresis As an Aid in Clinical Diagnosis**

THOMAS F. PUCKETT, M.D.
Hattiesburg, Mississippi

THE PRINCIPLE of electrophoresis has been known for one and one-half centuries. A Russian physicist named Alexander Reuss, in 1807, observed that when electricity was passed through glass tubing containing water and clay, colloidal clay particles moved toward the positive electrode. Michael Faraday confirmed this discovery and extended it by showing that any negative particles in solution or suspension moved toward the positive electrode and positively-charged particles moved in the opposite direction. Moreover, he showed that particles moved at differing speeds, depending on the number of excess charges that they possessed; the greater the number of charges, the faster the migration.

The way was thus opened to use electrophoresis as a means of separating particles out of a mixture according to their electrical properties. Bit by bit over the decades since and largely due to the efforts of physicists and chemists the theory of electrophoresis was built into a logical structure and methods were developed for applying it to laboratory problems.

The first essential for an electrophoretic experiment is an electrically active particle, which means a particle with more positive than negative charges, in other words an ionized particle. Since practically all proteins carry unbalanced distributions of surface charges electrophoresis is ideally suited for the separation and identification of these biologically important substances. It is with the separation of these substances that we will be concerned today.

There are two methods of separation by electrophoresis used today: 1) Moving boundary electrophoresis, in which an inverted "U" tube is used, the protein substance to be separated being placed in the bottom, the protein overlaid with suitable electrolyte solution and the electrodes placed in the two arms of the tube. The current causes migration of the various fractions of protein according to their charges and the boundaries of these substances are observed. 2) Zone electrophoresis, in which stabilized media such as agar, starch, paper, or glass wool strips are placed between two containers of electrolyte, each containing an electrode, and the protein is placed on the stabilized media. The passage of current through the paper from one vessel to the other causes separation of the protein moiety into various fractions which are bound to the media and may be studied in relation to each other. The commonest medium employed in zone electrophoresis is filter paper—hence the term filter paper or paper electrophoresis.

In practice, strips of filter paper are placed in an enclosed system, each end dipping into an electrolyte solution and the protein is placed in the center. Current is passed through the system for varying times, usually 75 volts for 16 hours, the paper is removed, dried, and heated to coagulate and fix the proteins. They may then be stained by one of several dyes, most commonly bromphenol blue. Electrolytes and currents commonly used today separate normal serum into five fractions—albumin, the fasted fraction, moving toward the anode, A^1, A^2, beta and gamma globulin which is rather stationary and may migrate toward the cathode. There are various methods of quantitating these fractions and the results are reproducible and compare favorably with results determined by the moving boundary technique. It should be stated however that, in general, the albumin fraction is higher and the globulins lower when determined by the conventional chemical procedures. The conventional chemical methods precipitate the globulins by "salting out" and there is a tendency for some of the globulins to remain with the albumin fraction and they are therefore quantitated with this fraction. Quantitation of electrophoresis strips therefore results in more nearly true values for the various fractions.

In the clinical application of the results of protein separation by zone electrophoresis it is well to review the basis of protein physiopathology. Note the central position of serum or plasma proteins in body economy. Despite the many variable factors which play a role in the maintenance of this "pool" it is maintained at an amazingly constant level in health. This diagram illustrates the major factors which may produce depletion or alteration in the various fractions and shows the relationship of these processes to particular organs or systems.

The simplest classification of protein disorders is that of Homburger and Peterman. These authors classify the significant changes which occur as follows:

1. Hypoproteinemias—which represent a lowering of the total circulating serum protein.
2. Hyperproteinemias—which represent an increase in total circulating protein.
3. Dysproteinemias—which include alterations in the distribution of the proteins and are usually associated with one or more of the other changes.

---

*Presented before the Section on Medicine at the ninety-first annual meeting of the Mississippi State Medical Association, May 12-14, 1959.

4. And finally the paraproteinemias which are characterized by the occurrence of abnormal proteins and notably occur in multiple myeloma and Waldenstrom's macroglobulinemia.

Hypoproteinemias may result from prolonged deficiency in dietary protein and those that result from the so-called starvation or malabsorption syndromes are readily diagnosed by electrophoresis because there is a uniform decrease in the level of each fraction. In simple dietary deficiency the various fractions rise rapidly with correction of the dietary deficiency. Lesions that interfere with absorption such as occur in pernicious anemia, some carcinomas of the stomach, and celiac syndromes give similar electrophoretic patterns as do those conditions characterized by absence of digestive enzymes such as fibrocystic disease of the pancreas. Excessive loss of proteins as is seen in ulcerative colitis and due to competition by helminthic parasites will also show uniform lowering of all protein fractions.

Among the dysproteinemias alteration in the albumin fraction which is synthesized in the liver proves very useful in the diagnosis of and in following the course of liver disease. In cirrhosis there is usually little alteration in total protein. There is severe alteration in albumin, however, and severe alteration in gamma globulin. Characteristically in uncompensated cirrhosis there is poor separation of beta and gamma fractions with hypergamma globulinemia and return to normal or near normal under treatment. In viral hepatitis there is normal or near normal albumin with elevated gamma globulin, the other fractions within normal limits.

Electrophoresis provides a very useful means of separating nephrosis or the nephrotic syndrome from glomerulonephritis. In nephrosis there is severe depletion of albumin and gamma globulin with a rise in A^2 globulin while in nephritis there is a simple hypoalbuminemia with normal globulin fractions.

Electrophoresis is diagnostic in establishing hypogamma globulinemia and agamma globulinemia. We recently had a case in which the gamma globulin fraction was only 200 milligrams (normal 700-1700). In the presence of normal albumin and relatively normal values in the other globulin fractions one is justified in diagnosing hypogamma globulinemia.

Electrophoresis has perhaps its greatest diagnostic value in establishing the diagnosis of paraproteinemia, most commonly seen in multiple myeloma. There are four M-globulins, myeloma globulins which occur in multiple myeloma. This case shows M-globulin superimposed upon the gamma globulin while this case has the M-globulin between the A^2 and beta globulins. M-globulin may also appear between the beta and gamma fractions and may migrate toward the cathode and be beyond the gamma fraction.

Electrophoresis may be done on urine in which there is proteinuria and if run with normal serum as a control may identify the fraction in the urine which may be useful in determining the cause of the proteinuria.

In summary then, paper electrophoresis is a simple and inexpensive procedure that is rapidly becoming available as a routine means of studying the serum proteins in a given patient. It is more useful than a simple A/G ratio because it gives the values of all five protein fractions and established patterns of alterations of these fractions may point to significant system involvement. Electrophoresis is diagnostic in hypogammaglobulinemia, agammaglobulinemia and in paraproteinemias.

Deleterious Effect of the Indoors Mechanism and Control

EMANUEL WITTLIN, M.D.
Los Angeles 45, Cal.

Of CERTAIN METABOLIC wastes, gaseous, vaporous, thermal, the human organism disposes by releasing them into the surrounding air, to be scattered in the atmosphere

Whereas, outdoors, freely flowing air washes the discharge away promptly, within a body of air hemmed in by an enclosure, removal and dissipation depend in large part upon diffusion. Emitted breath lingers near the point of its ejection. At the start of each inspiration, a portion of the immediately preceding breath is re-inhaled, virtually undiluted, still carrying CO_2 in a concentration up to 180 times that found in pure air. On the other hand, in the succession of breaths, as load upon load of relatively concentrated CO_2 is expelled, an individual pool of polluted air forms about each occupant of the room, thickening progressively until a steady state is established wherein the rate of dissipation comes to equal that of release.

Unlike the clean sweep of unimpeded atmospheric currents, eddies and other movements of indoor air, while contributing a measure of activation, fall short of supplanting the action of diffusion as agency of waste dissipation. Around the head of a person standing or seated, indoors, diffusion proceeds through a large space angle, as settling of liberated CO_2, heavy by comparison with the principal constituents of the air, is oriented away from the head. In contrast, about the head of a subject lying down, a mere fraction of the full space angle is open to diffusion, from one-eight to one-fourth, depending on the geometry of the particular arangement, while settling CO_2 gathers upon the horizontal expanse of the supporting surface, in a layer of strongly adulterated air.

Orthopnoea is an indication of such containment and stratification of metabolic waste over a bed. Propping up in an elevated position places the sufferer's head above the most densely contaminated layer of air, at the same time broadening the path of diffusion. Thus, is loosens the grip of respiratory distress to a certain extent. More radical is the effect of active removal of the emitted breath. Not only does it afford greater relief, but it enables the subject to stretch out in comfort.

The recessed configuration of bassinets and cribs accentuates the confinement. Occipital perspiration ceases when the infant's breath is drawn off.

An elementary test permits to observe a narrowing of air passages in the upper respiratory tract as self-emitted breath is re-inhaled. Sometimes, the constriction attains striking proportions. Its primary effect is to raise the resistance to the flow of air between the atmosphere and the lungs. Consequently, more mechanical power is needed to maintain respiratory balance. Until proper adjustment is accomplished, the respiratory function continues to operate on insufficient power. During that interval, the outflow of CO_2 lags in regard to the rate of output. In response to the ensuing rise of the internal CO_2 pressure, the nerve center which controls the respiratory muscles impels them to increase their power delivery. There is a trend towards restoring respiratory balance with stabilization at a somewhat higher CO_2 pressure level. Concurrently, the volume of air required per unit of time increases, partly, because previously expelled CO_2 is re-inhaled and has to be expelled anew, partly, because the muscles put out an additional amount. As a result, the pressure of CO_2 carried in the bloodstream tends to level off at a correspondingly higher value, in an equilibrium departing from the optimal condition in the sense of retention.

A narrowing of air passages can lead to serious consequences. Respiratory obstructions in children are well known to retard development, physical as well as mental.

Re-inhaling of self-emitted breath and back-pressure from the individual pool of locally contaminated air set up a state of retention that persists throughout the time spent indoors, being most pronounced during bed-rest. The onset of retention is often noticed upon entry into an enclosed space, under the guise of closeness, or stuffiness, attributed to the room without further thought, and soon forgotten.

Ordinarily, sensations associated with lesser fluctuations of the CO_2 pressure in the bloodstream do not invade the consciousness. A margin of comfort absorbs them. The excessive sensitivity of individuals afflicted with a deficiency in that respect, being either on the verge of dyspnoea or actually "short of breath", points up the cushioning intervention of such a margin in the others. With lifelong subjection to indoor environment most have become thoroughly accustomed to a degree of retention. Conditioning has extended their margin of comfort beyond the bounds of innocuous pressure. To be damaging, retention need not be felt to the point of forcing attention.

Enduring retention is a major factor in the genesis of a variety of disturbances. In the depth of the tissues, it assumes the character of a backup of the outbound flow of waste that hampers cellular function, thereby promoting degenerative trends and weakening the body's natural defenses.

In 1945, at a press conference held in Paris, France, Gen. Brehon B. Somervell stated that, despite a winter of unprecedented severity in western Europe, neither colds nor pneumonia were prevalent at the front, while men working at desks in the rear zones had such ailments in considerable numbers. Observations to which he referred were a by-product of large-scale military operations involving millions of participants. No peace-time experiment could match them for scope, concentration in time, rigidity of tests undergone. In the light of the foregoing, their meaning stands out clearly. Subjection to indoor environment had a greater bearing on the incidence of respiratory disorders than did exposure to the rigors of winter weather.

The invigorating freshness of the outdoors is due to quick removal of metabolic emanations. Universal acceptance notwithstanding, it does not come from any intrinsic quality of the open air.

Sluggishness of waste removal, and not some peculiarity of the air, accounts for the debilitating staleness of indoor environment. However spacious and well aired a room may be, its occupants are, themselves, inadequately ventilated unless their respective breath is promptly moved pass the reach of re-inspiration, by provisions specifically devised for that purpose.

As now conceived and practiced, ventilation applies to spaces. Care is taken to fill them with what is thought to be wholesome air. That roundabout procedure fails to achieve its ultimate objective: to provide for the comfort and for the well-being of the users of those spaces. Mere refinements will not offset the inherent weakness of the basic concept. In time, the emphasis will shift from rooms to occupants. Direct ventilation of the individual will prevail, especially, during the daily period of sleep.

The beneficial effect of the outdoors can be closely approached indoors by locally inducing a faint current of air, so channeled as to flow over the subject's face in the general direction from chin to forehead, slow enough, at that point, to be imperceptible. The jet of emitted breath is caught broadside. It drifts away from the nostrils before the start of the next inspiration. There is no immediate re-inhaling of self-emitted breath, nor any localized accumulation of respiratory discharge. Even, in a room whose atmosphere appears oppressive to an observer standing by, no air being admitted from outside the room the subject so ventilated experiences a sensation of freshness reminiscent of the outdoors. The air seems to grow light. Breathing becomes effortless.

Seemingly insignificant, indoors-induced retention is in reality a factor of considerable impact. In a moment of crisis, when survival hangs in the balance, it can tip the scales. By lowering the efficiency of the organic conversion and transfer processes, it undermines good health, aggravates disease, intensifies discomfort and pain, delays recovery, precipitates decline. Affecting everyone, throughout life, even, before birth, it is likely to be responsible for more illness, suffering and curtailment of human lives than could be traced to any other cause.

The problem concerns almost every branch of medical science and practice. Its many facets offer to research a multitude of inviting avenues.

5862½ W. 88th Street

Delta Surgical, Inc.

926 MADISON AVENUE
MEMPHIS, TENNESSEE

EXTENDS THE

Season's Greetings

TO THE

MEDICAL PROFESSION

Let us supply your office needs next year.
We will appreciate your business so much.
Let us see if we can not be of mutual benefit.

INTERPRETING MEDICAL LITERATURE

STAFF OF REVIEW

JOSEPH P. MELVIN, Jr., M.D. .... **Cardiology**
Harvey F. Garrison, Jr., M.D. .... **Pediatrics**
JAMES D. HARDY, M.D., and STAFF, Department of Surgery,
University Medical Center

CARDIOLOGY

An Intracardiac Pacemaker For Stokes-Adams Seizures, by Seymour Furman, M.D. and John B. Schwedel, M. D., Columbia University, College of Physicians and Surgeons, New York, New York.

This paper reports the clinical application of an intracardiac pacemaker in the therapy of two cases of severe or intractable Stokes-Adams seizures associated with heart block and it makes use of the lessons learned from previous publications which outlined experimental procedure and use of an electrode passed into the cavity of the right ventricle in dogs for stimulation of ventricular contraction. This work indicated that one could stimulate contraction of the ventricles by introduction of a current of low voltage directly to the endocardial surface of the right ventricle by way of the venous route of a customary cardiac catheterization.

The catheter used was a No. 6 Cournand electrode catheter which contains no aluminum but bears a copper wire and an exposed metallic tip. The catheter was passed into the right ventricular chamber and a grounded electrode was imbedded subcutaneously into the left side of the chest. After the position of the catheter tip was checked by fluoroscopy, the patient was carried on the intracardiac pacemaker at varying rates of speed determined by the demand of the moment. This work demonstrated that the ventricle, dissociated from sinus control, is highly sensitive to electric stimulation imposed from without the heart itself and applied to the endocardial surface of that organ. The heart can be driven from 30 beats per minute up to 180 beats per minute and, in several instances, once the stimulation was stopped, the hearts resumed their previous idioventricular rhythms. In one of the cases, the cardiac condition improved sufficiently during the period in which the ventricles were driven by the pacemaker so that reversion to rhythm more consonant with normal cardiac action occurred. In these cases, the stimulation was successful with the use of small voltages, that is, 3.2 and 1.5 volts respectively, and in both voltages there was complete control of the heart rate over a wide range. In the second patient the catheter was allowed to remain inside for 96 days, and thrombo-phlebitis did not occur.

Because of the discouraging results that internists have derived from the usual medications designed to prevent or treat Stokes-Adams seizures, any mechanical pacemaker of a practical nature holds real promise. The requirements of such a pacemaker would be, in my opinion, characterized by: 1) the use of extremely small voltages sufficient to drive the heart but not produce traumatic damage; 2) the ability to leave the mechanical pacemaker in situ over long periods of time without cardiovascular complications such as thrombo-phlebitis, mural thrombi, skin infections, etc.; 3) minimal or absence of discomfort to the patient by the stimulations with avoidance of painful contractions of the skeletal-muscular as in extra-thoracic cardiac stimulation.

Jos. P. Melvin, Jr., M.D.

SURGERY

Is Radical Mastectomy an Obsolete Procedure? Clagett, O. Theron, *Surgery, Gynecology and Obstetrics*, 109: 99, 1959.

This timely editorial by a surgeon of tremendous clinical experience is most welcome. In recent years there has been much criticism of radical mastectomy as a means of management of breast cancer. There are those who state that radical mastectomy has not materially affected the natural course of mammary carcinoma and that all efforts to treat this disease probably are futile. A few surgeons have developed more extensive operations that extirpate routes of lymphatic spread not included in the usual operation for mammary carcinoma. In another direction, considerable enthusiasm has been engendered for the concept that simple mastectomy or simple mastectomy plus irradiation provides just as effective or even more effective treatment of carcinoma of the breast than does the classic standard radical mastectomy. There has also been a more aggressive use of hormonal therapy designed to alter the hormonal environment of the cancer cells. Such measures include the previous use of androgens or estrogens, according to the age of the patient, as well as bilateral adrenalectomy, oophorectomy, hypophysectomy, or combinations of these.

While Dr. Clagett readily agrees that the treatment of a condition should never become static and certainly should be questioned from time to time, he does take issue with the viewpoint that treatment for cancer of the breast is futile, and he is opposed to the generalized use of the supraradical operation. He recommends, quite soundly, that those surgeons who are well qualified and suitably situated, who have pioneered in the examination of the supraradical operation and its results, be encouraged to continue their studies. Meanwhile, most surgeons would do well to continue the standard radical mastectomy procedure. It is stated that the comparisons that are possible indicate that standard radical mastectomy has achieved 20 per cent more 5-year survivals than has simple mastectomy and irradiation. It is pointed out that a properly performed radical mastectomy actually involves less risk, morbidity, and disability than does simple mastectomy plus aggressive radiation therapy. Therefore, since it is also more effective, it is clear that radical mastectomy should remain the treatment of choice for carcinoma of the breast at the present time.

Comment: This reviewer is in virtually complete agreement with the author of this editorial. For whereas the term "radical" used in connection with radical mastectomy suggests an extensive surgical procedure, the mortality of radical mastectomy is virtually zero. The risk of anesthesia is perhaps the only serious risk of the operation, so long as blood loss is replaced as it occurs. (This blood loss is usually in the neighborhood of from 1,000 to 1,500 cc.) After all, the thoracic cavity is not opened and one is in effect removing two muscles, a portion of the skin, and the axillary contents. The standard radical mastectomy still constitutes the best chance of cure for the patient, and it does not produce the morbidity which the as yet unproved supraradical operations impose. Admittedly, the standard radical mastectomy procedure leaves a great deal to be desired from the point of view of effective therapy, and we should of course continue to examine each new therapeutic avenue with a completely open mind. Nevertheless, it does not constitute sound judgment to abandon a therapeutic procedure of known value until controlled studies by appropriately suited physicians have indicated that another procedure is better.

—James D. Hardy

Book Reviews

Biopsy Manual: By James D. Hardy, M.D., James C. Griffin, Jr., M.D., Jorge A. Rodriguez, M.D., pp. 150, illustrations, 54 figures. W. B. Saunders Company Philadelphia, 1959. Price $6.50.

Note that the prolific pen of Dr. Hardy, head of the surgical department of our University Medical Center, has collaborated for an up to date and handy reference for the busy surgeon.

This convenient handbook describes the indications, techniques, precautions, potential errors and complications that may occur in connection with biopsies in general and with biopsies involving specific organs of the body. The greatest emphasis has been placed upon techniques with which precise collection of material is accomplished for histologic study, and much emphasis has been placed upon illustrations.

The authors have not dwelled on all of the techniques for biopsying a given organ but rather on generally accepted methods and those which in the authors' experience have been most successful.

This *Biopsy Manual* embodies much material of practical value in daily patient care and therefore of value to medical students and surgical trainees as well as to the general surgeon and general practitioner.

Dr. H. Earle Conwell, orthopedist of Birmingham, Alabama, is getting out a new edition of his book, *The Management of Fractures, Dislocations, and Sprains.*

This book has been a safe guide for the doctor in general practice for many years.

NATCHEZ CONVALESCENCE HOME

Mrs. W. A. Sullivan recently opened a nursing home to care for the aged, the infirm, and convalescents. The address is 102 Shadyside, Natchez, Mississippi.

Natchez Convalescence Home has been approved by the State Board of Health for the care of twenty patients. The license number is 112.

Rates will be quoted to doctors upon request and to members of interested families who may visit Natchez Convalescence Home.

FOURTH NATIONAL CANCER CONFERENCE

The fourth National Cancer Conference will be held in Minneapolis, Minn., September 13-15, 1960, promising to be most interesting and productive.

Medical Center Miscellany

Plans are under way for the first University Medical Center Day to be held Friday, February 5, as an initial annual "homecoming" for former University Medical Center house staff and for graduates of the four-year school.

Arrangements for a half-day scientific session are being made by the Postgraduate Education Committee under the chairmanship of Dr. Watts R. Webb. Dr. Webb has succeeded Dr. Louis Rittelmeyer, Jr., as committee chairman.

As presently planned, the scientific meetings will be followed by a dinner when Chancellor J. D. Williams and Dean David S. Pankratz will welcome the UMC "alumni." Invitations will be mailed in early January.

Neurosurgeons Named

Two new neurosurgeons have been appointed to the Department of Surgery faculty. They are Dr. Julian R. Youmans, assistant professor, and Dr. Giuseppe Scarcella, instructor. Both assumed their duties in October.

Dr. Youmans received his B.S. and his M.D. degrees from Emory University and his M.S. in anatomy and Ph.D. in neuroanatomy from the University of Michigan. He interned at the University of Michigan Hospital in Ann Arbor and took his surgery and neurosurgery residencies there interrupted by a year at the Institute of Neurology at the University of London. He earned his graduate school degrees while taking his specialty training.

Dr. Youmans was born in Baxley, Ga., and came to the Medical Center from St. Petersburg, Fla., where he had been in practice.

Dr. Scarcella graduated from Davanzati College in Trani, Italy, and got his M.D. at the University of Bologna. He interned in Naples and began his residency in Bologna. He was a fellow at the Cleveland Clinic from 1953 to 1954 and took three years specialty training at Baylor. Dr. Scarcella had been a staff physician at the Austin (Texas) State Hospital before coming to the Medical Center.

Circuit Courses Continue

The University Medical Center Circuit Courses, begun in Tupelo and Greenwood in November, will continue with a series of four half-day programs in Hattiesburg and Gulfport in January.

The Department of Surgery will present the opening program in Gulfport Memorial Hospital on January 13 and Methodist Hospital, Hattiesburg, on January 14. Dr. James D. Hardy, department chairman, will speak on "The Acute Abdomen," Dr. Curtis Artz, associate professor, on "Burns," and Dr. Samuel Johnson, clinical associate professor, on "Diagnosis and Treatment of the Red Eye."

The January 20-21 medical sessions will include discussions of "Practical Endocrinology," by Dr. Herbert Langford and "Selection and Usage of New Antibiotics," by Dr. Fred Allison, Jr. Both are associate professors of medicine. Dr. Earl Fyke, clinical assistant professor, will speak on "The Cardiac Patient as an Operative Risk."

Two pediatricians, Dr. Blair Batson, department chairman, and Dr. Darrel Smith, assistant professor, will talk on "Immunization Procedures," and "Endocrine Disorders in Children," respectively, during the January 27-28 course which is planned by the Pediatrics and the Preventive Medicine departments. Dr. Thomas J. Brooks, chairman of the latter department, will lecture on "Amebiasis."

The last in the southern series, to be presented by the Ob-Gyn Department February 3 and 4, will include talks by Dr. Lois Mosey, assistant professor; Dr. Clarence Sutherland, and Dr. William Wiener, clinical assistant professors. Their topics will be "The Diagnosis and Management of Toxemias of Pregnancy," "Clinical Approach to Ovarian Enlargements," and "Infertility."

The four weeks' sequence will begin in Meridian and Jackson on March 9. The Mississippi Academy of General Practice and the Mississippi State Medical Association are cooperating on the courses.

THE MISSISSIPPI DOCTOR

The journal with a vision which encourages a plan of delivering modern medicine to the masses at less cost to the individual and more profit to the practitioner. It champions the community hospital, the hub around which this service must be built.

Entered as second-class matter, January 19, 1926, at the post office at Booneville, Miss., under the Act of March 3, 1870. Annual subscription, $3.00.

W. H. ANDERSON, M.D. ....Editor-in-Chief
MILDRED P. ANDERSON ....Assistant Editor

MID-SOUTH POSTGRADUATE MEDICAL ASSEMBLY

W. G. Stephenson, M.D. ....President
Chattanooga, Tenn.
Omar Simmons, M.D. ....President-elect
Newton, Miss.
David E. Stewart, M.D. ....Vice-President
Brownsville, Tenn.
L. B. Otken, M.D. ....Vice-President
Greenwood, Miss.
C. G. Swingle, M.D. ....Vice-President
Marked Tree, Ark.
Thurman Crawford, M.D. ....Secretary-Treasurer
Memphis, Tenn.

Mid-South Associate Editors
H. King Wade, M.D. ....Hot Springs, Ark.
Frank M. Acree, M.D. ....Greenville, Miss.
R. L. Sanders, M.D. ....Memphis, Tenn.

MISSISSIPPI STATE MEDICAL ASSOCIATION

Stanley A. Hill, M.D. ....Corinth
President
G. Swink Hicks, M.D. ....Natchez
President-elect
Wm. E. Lotterhos, M.D. ....Jackson
Secretary
Rowland B. Kennedy ....Jackson
Executive Secretary
Wm. M. Dabney, M.D. ....Crystal Springs
Louis F. Rittelmeyer, M.D. ....Jackson
State Associate Editors

The Publication Committee is not responsible for the authenticity of opinion or statements made by authors or in communications submitted to this journal for publication. The author or communicant shall be held entirely responsible.

Address all material for publication to W. H. Anderson, M.D., 30 West Church Street, Booneville, Mississippi.

One of the sublimest things in the world is just plain truth.

Our last issue . . .

Our thanks to Dr. Harwell Wilson and Dr. R. R. Braund, both of Memphis, and their associates, for the two leading papers in this our last issue. Since the Mid-South Postgraduate Medical Assembly convenes in Memphis each year in February, it has been our custom to present papers in the issue before the meeting by Memphis medical men. Dr. Wilson's reports on advances in chest surgery have been foremost in the nation. Dr. Braund's work on cancer has been no less important in this field.

Memphis deserves a lot of credit for the support and the active interest the doctors have manifested in the Mid-South Postgraduate Medical Assembly. Memphis is a great medical center, has the largest medical school in the nation, with outstanding men in all the fields of medicine.

Dr. W. G. Stephenson of Chattanooga is the active and enthusiastic president this year. Dr. Thurman Crawford of Memphis is secretary-treasurer, and Leslie Adams, also of Memphis, is executive director.

We trust that the coming meeting in February will be the best one ever in the history of this oldest assembly. The dates are February 9-12, at the Peabody Hotel.

We call your attention to the illuminating presentation by Mr. M. M. Winkler on hospital costs. A hospital trustee and a certified accountant, Mr. Winkler talks from a concerned layman's viewpoint.

Medical care is a cooperative job for the doctor, the nurse, the hospital, the druggist, and the research laboratory. All have a responsibility for the cost of medical care.

At this blessed Season, we extend our warmest good wishes for happiness at

Christmas

and continued peace and joy in the New Year

Our thanks . . .

Through the past three decades we have consistently endeavored to place Mississippi in the forefront in medical progress by lifting the standards of medical care from Possum Trot to the urban center. Whatever progress has been made, and there has been much, it has accrued through the cooperative efforts of men of vision and dedication. It would be difficult to compile a roster of those meriting recognition. The list would include many who have passed on. But we could not come to our last editorial effort without acknowledging indebtedness and fervent gratitude

—to Dr. V. B. Philpot who founded the *Mississippi Doctor* and gave it loyal support across the years

and to every doctor who

—aided in establishing the per capita fund plan so useful during the depression years in caring for the indigent sick

—helped to build public health assets of unquestioned excellence

—insured a modern hospital construction program second to none in the land

—responded nobly to the plea for earnest community citizenship

—fought for the establishment of our four-year medical school, and threw around it protective measures to insure growth and future strength

—to former Mississippi governors Fielding Wright and Hugh White and J. P. Coleman and legislators of these administrations for foresight and wisdom in establishing our four-year medical school

and

—to the Mississippi Hospital Association for cooperation and support

—to those ready to pioneer in the new nurse training program

and

—to every contributor who has submitted original technics, treatises, research findings

—to associates who have cheerfully borne their portion of editorial leadership

—to guests who have brought new thought and new challenge

—to department contributors who have lent versatility, supplied meaty comment and news

—to advertisers who have supported the organ financially

—to friends whose optimism and encouragement made our task a privilege

—to my helpmate who believed in the mission of this journal even as I, who strived tirelessly for scientific excellence through its pages, and whose devotion to it never failed

—to friends whose greetings and letters of kindness have flooded our desk the past few weeks—and whom we shall cherish until life ends.

When we assumed all responsibility for the *Mississippi Doctor*—editorial, scientific, financial—we soon learned that investment in a printing plant was almost mandatory in order to maintain a standard for the publication. Despite trials through depression and war, mostly with problems of labor, we operated the most modern printing plant in north Mississippi, equipped especially for getting out the medical journal. Because of this investment we made clear our wish to continue the printing of the new state journal at the time we gave the *Mississippi Doctor* to the state association. An out-of-state plant is printing the new journal.

The *Mississippi Doctor* mailing list has included, in addition to the state members supplied to us from the Central Office, about 800 out-of-state subscribers (due to the papers which came to us from the Mid-South Postgraduate Medical Assembly). The greatest number of Mississippi members ever supplied to us is 1254. The most the association has ever paid for the journal has been one dollar per year for each member.

The chief argument for a state-owned journal has been the flow of revenue into the association treasury from advertising. There is no doubt that the new journal will enjoy a great increase in advertising over that the *Mississippi Doctor* procured. It is even conceivable that associational dues, which have quadrupled within the past few years, might be reduced to their former figure.

A GOING PROGRAM

Training the registered nurse as a cooperative responsibility of the public junior college and the Hill-Burton hospital is the newest and most promising plan to augment the supply of bedside nurses. A fine class is in its third year of training under this plan in Booneville, Mississippi.

60-744

Mississippi doctor.
v.37, 1959.

DATE	ISSUED TO
JUL 20 '67	Sophen 3946

60-744

Mississippi doctor.
v.37, 1959.

RETURN THIS BOOK ON OR BEFORE LAST DATE STAMPED

JUL 20 '67